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On pages 196a, 196b, 196c and 196d will be found the action of the State Society in the matter of Industrial Accident work.

EDITORIAL NOTES

THE SANTA BARBARA MEETING.

The Annual Meeting of the State Society, held last month at Santa Barbara, was a distinctly successful one and the attendance was rather larger than is usual for Santa Barbara meetings. The hotel people did everything possible to make it comfortable for the members and there was remarkably little kicking. The officers elected are: Dr. Harry M. Sherman, President; Dr. George A. Hare, of Fresno, First Vice-President; Dr. Rexwald Brown of Santa Barbara, Second Vice-President; Dr. René Bine, Dr. A. W. Hoisholt, Dr. Ewer and Dr. A. C. A. Jayet, of San Jose, were elected to the Council; Dr. Philip Mills Jones was re-elected Secretary. None of the reports, etc., could be obtained in advance for putting into type and so no attempt is made to publish the full transactions in this issue. The minutes will be printed separately as soon as possible and sent to county society secretaries as there are a number of things for the county units to consider. The plan presented by the Council for handling the insurance situation was adopted without the slightest change and together with the fee bill which was endorsed, will be found on pages 196a, 196b, 196c.

THE SAN FRANCISCO POLYCLINIC.

The Polyclinic recently celebrated the twenty-fifth anniversary of its birth as an organization in the medical life of California, and some of the gentlemen connected with it made the suggestion to the Publication Committee that a special number of the JOURNAL be issued, the contents to be mostly articles contributed by those who either are now or have been in the past connected with the institution. It was intended that the April issue should be devoted to this matter, but press of work prevented getting the material in shape in time for that number, and so it appears this month. Some very distinguished men have been connected with the Polyclinic during its twenty-five years of existence, and while it has had its own vicissitudes and the sun of good fortune has not always shone upon it, still its life has been a good one and its progress steadily upward. There can be no doubt that there is ample room in San Francisco for a post-graduate teaching institution; there is also room for a similar institution in Los Angeles, and if the right men will work earnestly for the development of such an enterprise in the right direction, it can be very useful. We sincerely trust that the Polyclinic will continue its growth and development along the lines indicated, and that it will become a post-graduate institution that will be really used by our physicians in California for the inevitably necessary "brushing up."

IDEALS.

California is particularly happy in having within her gates educational institutions that march "*pari passu*" with the best; and in this day of high ideals as illustrated in the curricula of the world's schools, there can be no higher praise. The recent transformation of our medical schools into colleges of the two universities was a long step in the steady advance towards the newer goal of vocational training; and quite recently the San Francisco Polyclinic has added as capstone to this admirable structure a theatre for efficient post-graduate instruction.

It is a commonplace observation that the men who are to-day being graduated from our medical schools come forth far better equipped for the practice of their art than were those mustered into its ranks some years ago. This premised, is it not to be deplored that the average medical practitioner is not a man of general culture, as we would have all members of a learned profession be? The world and its work was never better worth preparing for than now, for in science especially a new renaissance is arriving; the mysteries of natural law and human potency are being rapidly unveiled. The knighthood of the "Quest of Life" enrolls in the order of psychic and mechanical investigation and presses on to new accomplishment. Though neither wins the "Grail," each wins nearer to its laws. By the delicate ministrations of aseptic surgery, life is prolonged. Immunization lifts ever higher her red cross. Strong incentives these for the young men of our day. But the scarcity of broad culture is the "rift in the lute."

Perhaps one of the chief reasons for this condi-

tion is the fact of a premature election of vocational education. The minds and the efforts of the student are too soon and too narrowly directed towards those branches of learning which make for the future vocation. In this manner broad culture is missed in the curriculum, and this is unfortunately true in respect of all the learned professions. In our universities the tremendous influx of students, the confusion, the rush and the haste to enjoy the economical advantages of a degree have contributed much to this result. In our schools there is not a proper demarcation between the fundamental cultural studies of the early years and those preparatory to professional training of the later years. Early in his educational life the youth has been unfitted for liberal culture because the methods have been too highly specialized. The student has not sufficiently enjoyed in the lower grades instruction in the humanities before entering upon the studies preparatory to the vocation of life. A fundamental and sympathetic acquaintance with the humanities is as integral a part of a liberal education as a fundamental and sympathetic acquaintance with the sciences. In preparation for medicine the culture of science is of course nowadays not neglected, but the cultivation of the humanities too frequently is. In either case the education that should precede vocation is lacking, and the pursuit of the vocation becomes arid and material. "Quick returns" is the shibboleth; the riches and uplift of the humanities is bartered for a mess of potage.

Education is to enjoy the best and know the best, as well as to produce the best. The degree of a learned profession should be something better than a meal check. It has been said with some truth that the allurements of Mammon are too often permitted to call our ingenuous youth from the proper business of school and college. Short roads tempt them to abandon the broad work of education and to go prematurely to schools of professional and technical instruction. The consequence is, the sending forth of half-educated men to plead the causes, to heal the diseases and to lead the thinking of this generation.

J. DENNIS ARNOLD.

THE FEE SCHEDULE.

In looking over and thinking about the fee schedule agreed upon and recommended by the Council of the State Society, there are a number of points to be taken into consideration:

It is not a schedule of flat fees for all cases.

It is a list of minimum fees appropriate for workmen earning not over \$1,000 a year.

It does not cover everything; special cases need special consideration.

It is not put out as a contract of flat fees for which physicians must treat everybody injured.

The total amount received by our members per year will be very much more than what they get now.

Any member of the Society may be called in, if he wishes to do the work.

Any member has a chance to keep his patient and treat the injured one, if he wishes to do so, other things being equal.

It is especially understood and provided that unusual work shall receive adequate compensation.

It is essential that all bills be itemized and not "padded." Dressings used should be entered on the bill and a reasonable charge made for them.

All contracts to furnish medical services at wholesale are abolished.

CONSIDER SOME ACTUAL CASES.

In studying this matter, the accounts of a surgeon who does quite a little of this sort of work for people of moderate means were kindly submitted for examination. Consider these actual cases:

A workman had a compound fracture of both bones of the leg. The family wished to pay the doctor in advance. The highest fee he could ask in the circumstances was \$60, which was paid. He treated the patient for six or seven weeks in the hospital and finally did a bone-plating; the man will probably have to be operated upon again. The doctor has treated the patient for nearly three months, has operated twice and will have to do so again—and all for \$60! Under the law and the fee schedule as recommended, this same surgeon would have received over \$300 for the work already done.

Again: A workman suffered a bad fracture of the femur. A bill for \$50 was sent in. After two years the surgeon has received two payments on account amounting to \$15, and he has not pressed the patient because the man actually has not the money to pay the bill without taking food from his wife and children. Under the law and the fee schedule, the surgeon would have received from \$150 to \$200 for this case and got his money at once.

Which is the better for the physician?

ANOTHER EXAMPLE.

A member of the committee that formulated the fee schedule met a friend who does considerable surgery and in looking over the figures the surgeon scoffed at \$30.00 for a herniotomy. "Well," said the other gentleman, "what would you charge a man whose income is but \$1,000.00 a year, for such an operation?" The surgeon, after a moment's thought, said: "Why, I think

about \$50.00 would be as much as could be fairly charged." "Very well," replied his friend; "now consider the matter in this way. The fee allowed is \$30.00 for the operation. You would have to see the patient twice a day for, say, four days; that, at \$1.50 a visit is \$12.00. Then you would probably see him once a day for ten days, making \$15.00 more, or a total of \$57.00; \$7.00 more than you said you would charge! And when would you get the money for your operation if the man had to pay his own hospital expenses and your bill as well?" "Probably not for a year, if at all," was the reply. "Exactly so," said his friend; "and under this law and fee schedule, your bill will be paid immediately."

"I had not thought of it that way," said the surgeon, "but you seem to be right."

What do you think of it?

THE ANNUAL MEETING AT SANTA BARBARA.

It is not possible to publish the full proceedings of the Annual Meeting held last month at Santa Barbara in this issue of the JOURNAL without causing too long a delay in getting it out; they will appear in the June number, however, and as matters of the greatest importance were considered and acted upon, the reports should be read by every member. During January, February and March a number of conferences were held between representative members of the Society, the Insurance Commission and the Board of Adjusters of the insurance companies, and the result of these conferences, in the form of a general agreement and fee schedule, was presented to the House of Delegates in the Report of the Council. The agreement is practically a condensation and crystallization of the suggestions which have been made editorially in the JOURNAL during the past four months. We may consider ourselves fortunate in that we did not wait for two years or so and endeavor to fight this accident insurance, as did Michigan, but that our Council was wise enough to take up the question at once with the beginning of the law, and thus save as much trouble and anguish as possible. It must be remembered that this law is here and is here to stay; and also, that it has many good things about it, and that the men who are administering it are doing so fairly and broadmindedly, and intend to do the very best that they can for all the parties who are affected by it. Furthermore, it must not be forgotten that the law is really intended to care for only those who are working for comparatively small wages; indeed, the maximum income considered by the law is \$1,666 a year.

ORIGINAL ARTICLES

GEORGE CHISMORE.

By DOUGLASS W. MONTGOMERY, M. D.,
San Francisco Polyclinic.

I first met George Chismore in the spring of 1886, shortly after I began to practice in San Francisco. Like every beginner in a strange city, I felt the need of friends, and Chismore had a face attractive to everyone seeking human sympathy. This chance acquaintance would, however, never have amounted to anything if it had not been for favoring circumstances. Harry M. Sherman was then living with Chismore, and Sherman and I became fast friends. We two determined to agitate the forming of a society composed of men of our own age, and so began the Friday Evening Club, that met on Friday evenings and that had neither constitution, by-laws nor a permanent place of meeting, as we met in the residence or office of the members. The club was comprised of:

George Chismore, Alexander P. Whitell, Wm. S. Whitwell, John F. Morse, Henry Ferrer, Martin Regensburger, Harry M. Sherman, Robert I. Bowie, J. D. Arnold, W. W. Kerr, C. A. Von Hoffmann and myself. It was out of this association that the San Francisco Polyclinic later evolved.

In spite of the difference in age between Chismore and the rest of us, he was always a favorite, and we never wearied listening to his experiences on the frontier, which he told charmingly. Besides he had the gift of radiating kindness, a wonderful gift in a physician, especially when united with a knack of helping those in difficulties. He was then in his prime, and was doing a very large practice, both in his office, in what afterwards became his exclusive specialty, and also as a general practitioner. Although he had a large practice he did his visiting on foot and by employing the street cars. This eccentricity, for it amounted to such, may have been due to a peculiarity he had of continually watching his physical capabilities. He would feel the keys in his pocket to determine if he could distinguish one from the other. He would try the feeling of different coins with the same intent. When starting in practice his money gave out and he lived for quite a number of days on milk alone, and during that time he ran a stated distance each day to determine if he was maintaining his strength. In fact he was always studying himself. In depriving himself of a vehicle he knew that the walking he necessarily had to do was of benefit. He learned, as many another has, that the knee is an admirable physical monitor, and that when it becomes feeble the rest of the body is apt to follow it. By constant walking he realized that he would keep himself in condition. Relating to this I remember an amusing incident. A strike took place on the Sutter Street carline, and Chismore thought the employees were in the right in the contest. Consequently, from sympathy, he would not enter the cars, and as his practice lay to a large extent in the district served by this line his legs were nearly worn out before the strike was over.

This care of himself may have been due to some extent to indigestion, from which he was a constant sufferer, and may also have been a natural consequence of a long experience of frontier life, where physical ability is of the highest importance. He lived long in Alaska, and while there offered his services to the Smithsonian Institute as a student of the Indian tribes, on the condition that he would be cared for in case of disability from accident or old age, for he knew that if he failed in health he would be killed by the Indians as a useless member of the community. This offer was refused, and he left Alaska, but he never ceased to regret the wild life of the wilderness.

The relationship between Chismore and Sherman was highly amusing. Chismore was full of good-natured tolerance for everyone except for the mean man or the one who would maliciously deceive, while Sherman held strict control over his own actions and expected everyone else to attain the same high level of duty. Sherman was tidy, while Chismore was as careless in his person and surroundings as a frontiersman, which he really was. Chismore was deeply interested in the study of urine and would collect large numbers of bottles of this excretion from his various patients, and while pondering over the condition of his patients and the relationship of their symptoms to the urine, decomposition would take place in his specimens and they often became very ancient indeed. Along would come Sherman, and the whole collection would go down the sink. Observing this Chismore would bear with the meddlesomeness of his friend, although he did not approve of it.

Chismore was born, or at least lived as a child, in Ithaca in New York State. The family was mechanical, they were mostly, if not all, employed in the Remington rifle works, and the impress of this early association was ground deeply into Chismore, and for him every rifle he owned had a separate individuality.

When Chismore was a boy of about fourteen he and his father had a disagreement, and both being Chismores neither would yield. The upshot of it was that the little fellow was put on the railroad for New York City with some money in his pocket and the usual parental admonitions. In New York he shipped as a cabin boy, and he must have enjoyed his trip around the Horn, as he told many a story of it. It was a long journey, as in those days the vessels sailed nearly to the African coast to take advantage of the winds, and in the narrow limits of a ship there was fine opportunity to try out shades of human nature. The salient feature in this regard was a surly mate, who once ordered the boy to scrub a hatch cover. The boy did as he was bid, and having accomplished his task gathered up his brushes and was preparing to leave, when along happened the mate and ordered him to continue until told to stop. The mate forgot all about him and when he did return Chismore was still scrubbing, although with brush and sand he had scrubbed a hole clear through the hatch cover.

When the ship arrived in California it saw the

last of its alert and pertinacious cabin boy, who went to the mines in Nevada, where he fell in with a dentist and became, as he himself often said, a good dentist. In those days occupations were lightly changed, and it was with equal readiness that, afterwards falling in with a doctor, and being told he had an aptitude for medicine, he began to read the doctor's books and became a medical man. At one time, on a voyage, he tried his hand at being an artist, but after endeavoring to catch the colors of a sunset he pitched the whole painting paraphernalia overboard, and returned to his work as a sailor man.

For a long time Chismore wandered in Alaska and otherwheres on the Pacific Coast as a contract surgeon in the United States Army. This was at a time when it was not necessary to have a degree in order to hold such a position. In fact he took his degree quite late in life, and I remember how surprised I was when I first learned the date of his graduation. Even after graduating he did not go into genito-urinary surgery. He became connected with a hospital having a large gynecological service, and was making a name for himself as a gynecologist when one of those upheavals occurred that happen in every institution, and he found himself down and out. The full details of this injustice I never learned, for Chismore was never one of the mourners. I learned enough, however, to know that it was one of the usual occurrences in institutional life. Institutions, when they grow at all large, become nests for intrigue.

After losing this hospital position Chismore went along with his general work, but with a strong bent toward diseases of the genito-urinary tract, in which he had had considerable experience during his service in the army. He was drifting and it was at this time that Sherman's masterfulness shaped Chismore's life. It is true that he was drifting rather purposefully, but it was not the straight line needed to really attain his object. Among other things Sherman went to a bookseller and ordered every book obtainable on the genito-urinary tract, and stacked them up in Chismore's bedroom. Chismore, who was an industrious reader when the mental fodder was put down before him, began at the top of the pile and read down through it. In this sense Sherman made Chismore. In mentioning this incident of the books I may also mention a marked feature of Chismore's character. Till long past middle life he retained his receptivity to ideas, and his inventiveness. He read and digested those books, and applied what impressed him to his practice, and he was past fifty years of age when he invented a way of crushing stone in the bladder.

I may here relate an incident that showed the characteristics of both Chismore and Sherman, and the relationship between them. Sherman and I were returning from Toronto to San Francisco, and on boarding the overland train in Chicago whom should we run across but Chismore. Chismore was very proud of his knowledge of the wilderness and overestimated his adeptness in hunting and in woodcraft. In fact, he was, in an unconscious sort of way, very conceited. I now

use the term conceited in the same sense as it occurs in the Scotchman's prayer, "Oh Lord! Gie us a gude conceit o' ourselves," and carries the signification of strong self-appreciation without belittling either neighbor or adversary. After leaving Ogden, and when we had entered that dreary desert that stretches to the top of the Sierras, Chismore looked up from the "Confessions of Jean Jacques Rousseau," that he was reading, and said quietly, "My memory of locality is so keen and I have been over this road so frequently that I can always tell within a few miles of where we are." Sherman cocked up his ear at this and in about an hour he asked Chismore to state where we were. He looked out on the dreary sagebrush waste, where a coyote would have to carry a guide book, and made his guess. It was a very poor guess, and Sherman was prepared to show him the poorness of it. Several times during the day this sort of thing was repeated, and always with the same result. Chismore was always a good sport and never refused to answer Sherman's challenge, and Sherman, on his side, took great delight in calculating how far the assertion varied from the truth. This incident has always been of the highest interest to me. Successful physicians are apt to become intolerant of criticism, partly because they are used to having their own way with their patients and to ordering them around as one would children, and partly because they are not brought up squarely against an opponent, as a lawyer is. Chismore always remained as open to criticism as he was to ideas, and at the same time was punctiliously careful of his self respect.

In politics Chismore was a Democrat. I once asked him why he had joined that party, when his very early affiliations were with the Republicans. He said he had seen so much crookedness in Alaska during the Grant administration and afterwards that he could not stand it. Having become a Democrat he followed the party leaders almost unquestioningly. Grover Cleveland was the darling of his heart, and he never failed when in New York to personally pay his respects to his political chief. I, however, shall never forget his embarrassment when W. J. Bryan came upon the scene. Chismore would take a silver dollar out of his pocket and try to convince himself and me that it was what Bryan said it was, but his good sense always stood between him and an extravagant Bryan-esque conclusion. He would even go to the extent of giving the coin to a beggar, and then turning to me would say laughingly, "You see it must be good. That fellow takes it all right."

Chismore was not an educated man in the ordinary acceptation of the term, either in letters or in medicine, yet both in medicine and in letters he was much cleverer than most of those who are educated. He was forced to gain his livelihood too early to have much schooling, and on the frontier, where so much of his early medical life was spent, there were no opportunities to study medicine in a regular way. This lack of education led to many curious expressions and mistakes. For instance the "prostate" was never

anything to him but the "prostrate," and the mistake was all the more curious because it lay in his specialty and was a word he necessarily employed constantly. Furthermore Sherman must have corrected him again and again for this very mistake.

He was often not at all enchanted by an accurate diagnosis, and this led to the following amusing incident:

While Chismore was off on a hunting trip, Sherman called me in to see a patient who had arrived from the country to consult Chismore. I made a diagnosis of leukocytopenia, of which I was very proud, seeing that shortly before one of these cases had slipped through my hands. We gave the family and the patient the usual gloomy prognosis. Shortly afterwards Chismore returned and gave us an entirely new view of the case. According to him we had disturbed the family, and had caused a great deal of unnecessary trouble, and had not done anything to relieve the discomfort of the patient. In fact we had added to the patient's discomfort. It is needless to say that I then learned a few things, both about patients and physicians, and their mutual relations.

He suffered from many disadvantages from his lack of training although in some ways it may have been an advantage. An educated man, unless he keeps a strict guard on his manner of observing natural phenomena, may become hedged in by his training to think along unbending lines. Books must necessarily be schematic as they have to be built within rigid limits, otherwise they would be compilations of disorder, an inextricable tangle of actions and facts. To comprehend disease phenomena according to books would be to regard them as solid cubes and parallelograms, sharply limited and wholly enclosed. To unswervingly follow their guidance is therefore to become a ritualist rather than a thinker. Chismore was far from being so constituted. He would see as many penumbras, shadings, and rotundities in nature as Leonardo da Vinci himself. Then again a man of parts like Chismore is forced by his lack of knowledge to think out the possibilities of the individual case, and in medical work it is often the events and facts in the individual case that count. As illustrative of this I once heard a man say scoffingly of Chismore that he knew many little things about the care of patients that he had picked up from nurses. It struck me at the time that it was high praise for Chismore, and was another aspect of a saying that was daily in the mouth of von Leyden, "For the patient there are no small things." Nevertheless there was no doubt that Chismore's ignorance in many fields of medicine was a great hardship to him. In spite of this, however, he held his practice not alone among patients but also among physicians, and it shows the intrinsic merit of the man that he did so. At a most trying time in the transition of the whole art of surgery when men with far greater advantages, and while yet in their prime, were being shelved, he, without the backing of any hospital, institution, or clique held his own and

kept the confidence of a numerous clientele till his final illness.

He overcame even the disability of personal ailment, as years before he took to his bed he was constantly in pain.

Not long before he took to his deathbed I met Chismore on Sutter street, and a kindlier, more benevolent face you would rarely see. He was thinner than he had been, and his white hair and beard with his delicately traced features gave him an ethereal, spiritual look. Sometime after this I went to visit him with Sherman. On entering the room Sherman kissed the old man on the forehead. The answering look of full, tender, lingering affection was one of the finest sights I have ever seen.

Hardship may embitter a man, and prosperity is even a severer test for human character, and Chismore had passed through all grades of both the one and the other and at the end still retained his capacity for loving and being loved. This was worth while.

A REVIEW OF THE EARLY VACCINATION CONTROVERSY WITH AN ORIGINAL LETTER BY JENNER REFERRING TO IT, AND TO THE SPREAD OF VACCINATION TO THE SPANISH POSSESSIONS OF AMERICA, THE PHILIPPINES, AND OTHER EUROPEAN SETTLEMENTS IN THE ORIENT.

By PHILIP KING BROWN, M. D., San Francisco Polyclinic.

No sooner had Edward Jenner proposed the practice of vaccination as a preventive for smallpox than there arose in England a controversy as to its safety and efficiency which has been endemic ever since, interrupted by more or less violent epidemic outbreaks. Nor has the controversy been confined to the home of its birth, for we find it more than a century later in full flower even in the classic hamlets of our own state.

The humor of the situation reveals itself in the analysis of the present state of the controversy in which it is clear that the antivaccinationists have contributed no new argument in that more than hundred intervening years, whereas science has shown that whatever little claim they had to a hearing was based on misrepresentations now well understood and revealing no truth in favor of their contention. The 10th Edition of the *Encyclopedia Britannica* in an article on vaccination presents only an unintelligent arraignment of the method unworthy of a place even in the earliest edition. In a short biography of Jenner closing with an apologetic paragraph, is the only meagre account of Jenner's great discovery. The 11th edition gives a fairly satisfactory historical review of the established facts of vaccination.

In presenting to you the status of the controversy as defined within the first few years of Jenner's announcement of his discovery, I have reviewed articles published at the time and especially those referred to in one of Jenner's letters to a friend, which letter fell into my hands through a collector and which reads as follows:

Cheltenham, 22 Nov., 1806.

The Rev. Mr. Dibbin,
Kensington.

My dear Sir:

I have seen the Edinburgh Review, and a most gratifying sight it was. Mosely and his adherents had before called down many a pelting storm upon their heads, but this tornado must I think annihilate them. The author or authors are perhaps not perfectly conscious of the immensity of good they have done. The Pen of Mosely, I am confident, has slain more than the sword of Bonaparte. This admirable Critique should be universally read. But this cannot be expected while it is exhibited in its present shape only; and I am at a loss to know how it can obtain circulation in a detach'd form. But among your brethren of the Press you will soon I imagine be able to tell me. It should pursue Mosely's book in all directions, as an antidote to its Poison.

Woodbine Cottage looks beautiful even in death, for Winter has apparently killed all its vegetable ornaments. Our Fds is going on—Mount Pleasant is now the favorite object. This is a lovely Meadow and commands one of the richest prospects around this favor'd spot. Here you will ere long see a Magnificent Reunion. Pruen's taste is more conspicuous in architecture than in ornamental gardening. The latter, which is a species of Landscape Painting requires much Time and study to produce correct specimens. The taste of Ferryman is far beyond that of any one existing or that even did exist, according to my notions, in laying out ground.

I hear with extreme delight that my poor dear Swann is better—God grant it may be true—I have a thousand fears about him. If you don't come and see us, write soon, I beg you.

My best respects to Mrs. Dibbin.

truly yours,

E. JENNER.

P. S.—I have just received from Madrid the most interesting document that has ever reached me on the vaccine subject. It comes in the form of "Suplemento a la Gazette de Madrid" and gives a detailed account of an expedition fitted out by order of his Catholic Majesty for the sole purpose of propagating the vaccine in all his foreign possessions and many other parts of the world. The expedition sailed in 1803 and returned in 1806. I will send you a copy of the Gazette and a translation. I don't imagine the annals of history furnish an example of philanthropy so noble, so extensive, as this.

The article referred to was entitled "On Vaccine Inoculation" by Robert Willan, M. D., and others, and is a masterly criticism in the Edinburgh Review, Vol. 9, 1806-7, pp. 32-66. A certified copy of the supplement of the Madrid Gazette for October 14, 1806, giving a brief account of Charles IV's expedition, I succeeded in securing through the American embassy at Madrid, from the National Library, and it was translated, —preserving the style of expression, by Mdme. I. M. de Reygadas. The former article is quoted

from freely, in this paper, and the latter is presented in full.

It must be borne in mind that the controversy of a hundred years ago did not confine itself to the merits of cow-pox vaccination as a preventive to small-pox. The great issue was whether cow-pox really was as safe and effective in establishing immunity as direct inoculation of small-pox and as to whether it did not introduce into the system "bestial humors," "strange mutations of human character from quadrupan sympathy," scrofula, malignant ulcers, etc.

Inoculation of small-pox as a preventive measure is spoken of by even anti-vaccinationists of that period as a most noble and blessed discovery as it diminished the hazard to which everyone was subjected in a most important degree. For one hundred years inoculation had been in practice as a preventive to small-pox,—that is, the disease itself was transferred from case to case, it being recognized that an immunity followed recovery, and the mortality from cases so inoculated was slight as compared to that which obtained from the disease itself,—called the "natural small-pox" to distinguish it from the inoculated.

Willan writing of the situation at that period:

"Of those who have the disorder naturally, one is found to die in six. Of inoculated patients, only one dies in 250. In London, where it ought to be best ascertained, some eminent practitioners have stated the proportion to be as high as 1 in 100. The zealous antivaccinationists have denied it to be greater, under judicious treatment, than 1 in 1,000. It cannot be denied, however, that besides this risk to life, the disease, even under this mitigated form, has frequently proved an exciting cause to scrofula, and other dreadful distempers, and has often been attended with blindness and deformity."

It will be clear from these statements what a frightfully high mortality attended epidemic small-pox, and its prevalence may be estimated from the data presented later by the House of Commons Committee appointed to investigate cow-pox vaccination. From a calculation made by Dr. Heberden whose name has come down to us through the association with the nodes on the joints in rheumatism, it seems that over a period of thirty years before vaccination 95 persons died of small-pox in London out of every 1000 deaths, and the annual death rate of Great Britain was upward of 40,000. This would make the number of cases of small-pox annually between 240,000, based on all the deaths being from the natural disease, to a half million if one-fortieth of the total deaths were due to the inoculated disease.

This was the status of affairs when Jenner announced the results of his observations on cow-pox and its relation to the prevention of small-pox. His own account of these observations is interesting:

"My inquiry into the nature of the cow-pox commenced upwards of twenty-five years ago. My attention to this singular disease was first excited by observing, that among those whom in the country I was frequently called upon to inoculate,

many resisted every effort to give them the small-pox. These patients I found had undergone a disease they called the cow-pox, contracted by milking cows affected with a peculiar affection on their teats. On inquiry it appeared that cow-pox had been known among the dairies time immemorial, and that a vague opinion prevailed that it was a preventive of the small-pox. This opinion I found was comparatively new among them; for all the older farmers declared they had no such idea in their earlier days: a circumstance that seemed easily accounted for, from my knowing that the common people were very rarely inoculated for the small-pox, till that practice was rendered general by the improved method introduced by the Sutons: so that the working people in the dairies were seldom put to the test of the preventive powers of the cow-pox."

During the years of investigation and experiment Jenner's hopes had been damped by finding that some persons who had been infected from the genuine cow-pox, had, nevertheless, proved liable to variolous infection, and that one was sometimes effectually protected, when another infected from the same sore, proved liable to after-contagion. By diligent and continued observation, however, he was fortunately enabled to explain this anomaly also. He ascertained by repeated experiments, that when the pus was taken from the ulcer or sore on the cow, after a certain stage of its progress, it produced a sore in the human body of a character altogether different from that which resulted from an earlier infection, and that it was only the disorder communicated in the earlier stages of the case, and before the pus originally secreted had undergone any "change or decomposition" that had the power of shielding the patient from an infection of small-pox.

Having brought his observations so far to maturity, it occurred to Jenner to try the experiment of propagating the disease by inoculation, first from the animal, and afterwards from one human creature to another. In the year 1796, he accordingly inoculated a young man from the hand of a milker who had the distinctive symptoms of the genuine cow-pox, and had the pleasure of finding, that, when inoculated for the small-pox, at the distance of some months, the individual completely resisted the contagion. The experiment was afterwards enlarged; and, after inoculating some hundred children, and putting them, at different intervals, to the test of a subsequent inoculation for small-pox without effect, he ventured to communicate his discovery to the world in a treatise published in 1798, which was followed up the year after by a still longer list of experiments and observations. In these works, Dr. Jenner suggested, that the disease itself was probably not original in the animal from which it took its name, and that several circumstances led him to believe that it originated from the distemper called the grease in the heels of horses, and was communicated to the cow by being milked by persons employed in dressing such horses. The cow-pox was uniformly unknown in those dairies where the milking was performed by women; and in all

the instances where Dr. Jenner could trace its introduction, he found that the milkers had been recently in the habit of handling horses affected by the grease. This conjecture, it is said, was later verified by inoculating the cow from the grease directly, thereby producing the genuine form of cow-pox.

The first public opposition that was made to Jenner's report of his discovery, was in a publication of Dr. Moseley's in 1798. In this work, which was entitled, "A Dissertation on Sugars," the doctor ingeniously contrived to introduce a violent philippic against the new practice of vaccination, in which, as he had no experience or observation on which to found his opinion, he contented himself with pouring out an immense quantity of abuse.

It was this and subsequent publications of Moseley's that called forth Jenner's statement, "Moseley's pen has killed more than Bonaparte's sword."

Following Moseley's attack, reprinted two or three times, the opposition grew quite violent. Charges of murder and falsehood were interchanged among the disputants without the smallest ceremony; the medical journals foamed with the violence of their contention; it raged in hospitals and sick chambers; and polluted, with its malignity the sanctity of the pulpit, and the harmony of convivial philanthropy.

In 1802 the subject was submitted to the consideration of a committee of the House of Commons, who after taking the evidence of Drs. Ashe, Sir W. Farquhar, Blane, Woodville, Baile, Pearson, Haberden, and thirty-two other practitioners of the first eminence in London, gave a report decidedly favorable to the new system. Out of the forty persons examined on this occasion indeed, there were only three, viz., Dr. Moseley, Dr. Rowley and Dr. Birch, who expressed any doubts of its efficacy; and at this time it is remarkable that not one of these gentlemen went beyond the expression of doubt; all the rest were decided and confident in their testimony. Dr. Woodville stated in particular, that in the last six months, he had vaccinated, at the small-pox hospital, 7,500 patients, the half of whom had been since inoculated with the small-pox matter, without the smallest effect being produced in any one instance.

Dr. Moseley himself stated that his opposition to cow-pox vaccination was founded at that time "on the basis of theory," and, two years after he had three times reprinted that miserable specimen of scurrilous buffoonery, he informed the committee of the House of Commons that he did not himself know of any instance in which it had either failed to prevent small-pox, or been followed by constitutional diseases, although he had heard of such things from persons, none of whom he could then recollect, or mention to the committee.

In 1804 Mr. Goldson of Portsmouth published six cases of small-pox occurring after vaccination, accompanied with observation, calculated to shake the confidence which was now very generally placed in the security of the Jennerian inoculation. These

were answered by Mr. Ring and others, who endeavored to show, that in some of his cases, Mr. Goldson's patients had not had the genuine cow-pox in the first instance, and that in others, they had not had the genuine small-pox thereafter. This part of the controversy was conducted with temper, and with a reasonable degree of candor. About this time there was issued in London a statement signed by many of the leading physicians of the time which served to quiet the controversy for a season: "Many unfounded reports having been circulated, which have a tendency to prejudice the mind of the public against the inoculation of the cow-pox, we, the undersigned physicians and surgeons, think it our duty to declare our opinion, that those persons who have had the cow-pox are perfectly safe from the infection of the small-pox. We also declare, that the inoculated cow-pox is a much milder and safer disease than the inoculated small-pox."

This certificate was signed with the respectable names of Drs. Bailie, Lettsom, Garthshore, Willan, Lister, Vaughan, Moore, and by five and twenty other physicians and surgeons of the first reputation in the metropolis.

The practical question being whether vaccination ought to be adopted in preference to inoculation with small-pox, it is evident that the question could only be decided by taking a comparative view of the advantages and disadvantages of vaccination and small-pox inoculation as pictured at the time. The arguments advanced by the two sides may be summarized briefly.

The great advantage of small-pox inoculation was that it prevented certainly, or almost certainly, the recurrence of that disorder, and that it was in general, infinitely milder than the natural form of the disease. Its disadvantages were shown to be that it is attended with considerable hazard, both to life and to the general constitution; and, that being an infectious disease, its partial adoption exposes greater numbers to the natural malady than would otherwise fall in the way of it. In consequence of this circumstance we have already seen that the total mortality by small-pox was increased nearly one-fourth after the practice of inoculation became general.

The advantages of vaccination, according to the report of its early advocates, were: (1) that the disease which it communicates is not in any degree infectious; (2) that it is as effectual a preventive of small-pox as the old inoculation; and (3) that it produces a disease infinitely milder, and less hazardous, than arose from the former practice.

Of these three invaluable properties ascribed to cow-pox by its admirers, the first was unequivocally admitted by its opponents: the disease is universally allowed not to be infectious.

The most determined enemies of vaccination did not long pretend to deny that it prevented small-pox for a certain time, or to a certain degree. The unquestionable facts that have been accumulated by its admirers, have established that general point in the most complete and satisfactory manner. Dr. Woodville alone subjected nearly 4,000 vaccinated

patients to the small-pox inoculation in the course of six months and found that everyone of them resisted the infection. That experiment was repeated probably not less than a million times, according to Willan and others, with the same result. Cow-pox, therefore, is confessedly a preventive of small-pox; and the only question is whether it will be an infallible and a permanent preventive.

The arguments on this point are of deep interest to us in light of our present vastly greater knowledge of immunity.

"It seems contrary to all analogy, and all rules of reasoning, to suppose a priori, that an immunity which is found to subsist for a certain time in the usual and healthful state of the system, will gradually and insensibly wear away without any apparent cause, or any sensible change to indicate its extinction; and the facts which bear at all upon the question, so far from suggesting or supporting such a supposition, seem, in our apprehension, completely to refute and discredit it. In the first place, the natural and inoculated small-pox, the measles, and the whooping-cough, which are the only other cases in which a preceding disease is found to bestow an immunity after its own cessation, are allowed to confer a permanent immunity, and not one that is gradually and silently destroyed by the lapse of time. In the second place, the matter seems experimentally settled, by the case of natural cow-pox, in which the security has been found unimpaired and entire after the lapse of twenty, thirty, forty and fifty years. Lastly, even if we were to admit the whole of the cases of small-pox occurring after vaccination, which the enemies of the practice have founded on, we could never hold that the preventive virtue naturally wore out in a certain time, because these cases are alleged to have occurred indiscriminately at all periods after vaccination which have yet been possible. In cases of continual exposure, they are said to have taken small-pox, at all distances, from three months to seven years after vaccination. It is impossible to suppose, therefore, that the preventive power of cow-pox wears out of the human frame in a certain period of time. If the cases are to be submitted at all it would be more rational to suppose that it imparted a weak or imperfect power of resistance, which might be overcome by a powerful contagion."

The great difficulty of establishing true relations of cause and effect was keenly appreciated by the early defenders of vaccination and over this question of immunity through vaccination the fight was strongest.

The evidence that is requisite to prove or disprove any proposition in the science of medicine, is of a peculiar kind. It differs entirely from that species of proof which satisfies a court of law. Both direct and circumstantial evidence, which would leave no doubt in the breasts of judges and juries, have often not the slightest tendency to render a medical fact even probable. The declarations, and even the oaths of the most conscientious, disinterested, and able men, are all insufficient. Nor is there to-day sufficient understanding

of immunity and its laws to satisfy our high standard of scientific explanation.

It is not surprising, therefore, that the question of relative immunity was an all important part of the controversy and that the attack on vaccination took the form of testimonials from all classes on this point.

This species of unintentional perjury, so large a part of modern medical advertising and controversy, was referred to by many chroniclers of Jenner's time as being very common during the 18th century in every part of Europe; and, "the more improbable the fact was, the more numerous were the affidavits and the more respectable the signatures. Clergymen, judges, and peers, are daily swearing that they have been cured of incurable diseases; but the meanest apothecary smiles with contempt, when he reads their splendid testimonials."

Willan sums up the disputed point of immunity as follows:

"The first position is, that in all, or almost all the cases where small-pox have really occurred after an alleged vaccination, the patient really never had the cow-pox, the inoculation having miscarried, by accident or inattention. The total number of such cases, we believe, is considerably under a hundred out of little less than half a million of vaccinated subjects; and, when the following particulars are attended to we are persuaded that they will appear fewer than might have been reckoned on, from the novelty, and, in some respects, the nicety, of the practice. In the first place, it is well known that within a short time after the promulgation of the discovery, a multitude of individuals, of all sexes and professions (Dr. Willan says not less than 10,000), many of whom had never seen the disorder in their lives, took upon them to practice the inoculation in all parts of the kingdom. That some mistakes should be committed by such practitioners, even in a matter of the utmost simplicity, could not excite wonder; but the truth is, that the operation was a matter of considerable nicety and not perfectly understood, even by medical practitioners, till after the publication of Dr. Jenner's full directions and engravings in 1802. The causes of mistake were various: 1st, the matter was sometimes taken from a spurious sore, in the first instance, which, though it raised a vesicle, and excited inflammation in the inoculated patient, could never, of course, communicate the genuine disease. 2nd, it is still often taken from the true sore at too late a stage of its progress, in which case, though it seldom failed to produce a very active inflammation, it could never give the true cow-pox. 3rd, the matter, though taken in proper time, was sometimes decomposed or corrupted, by being too long kept, or exposed to air, or heat or cold, or diluted in too much fluid. 4th, when all these circumstances were attended to, it sometimes happened that, owing to the existence of eruptive fever, or violent cutaneous disorders, the patient did not receive the full constitutional affection nor indicate the decided symptoms of regular vaccination. Lastly, it was some time before even the regular practitioners were so

perfectly acquainted with those characteristic and decided appearances, as to be able to say with certainty whether the vaccination had actually taken effect or not." The circulation of Dr. Jenner's descriptions and engravings went far to remove this uncertainty; but it was not perhaps completely obviated till the publication of Dr. Willan's excellent observations, in which he described all the various forms and appearances of the spurious, as well as the true vesicle, in a way which puts it in the power of any attentive reader, in the least degree acquainted with the subject, to attain perfect assurance in every case that can occur to him.

This is the brief history of one of the greatest contributions to preventive medicine the world has ever known. In the present age of scientific review and proving of every fact in medicine before its acceptance, it stands out as a contribution from clinical medicine based upon observation and reasoning. That Jenner extended his observations over a period of 25 years before voicing his belief

cow-pox vaccination as well as for the extent and dread of the disease which it was destined in time to reduce almost to an historical memory. Indeed, but for the interference of the ever present false and shallow prophets whose chief ability seems to be mistaking opinion for fact, it is quite probable that small-pox would long ago have become practically unknown.

The newspaper account of the expedition is given in full, for it tells in graphic way the interesting features of the expedition. I have secured a photograph of the statue erected by the Filipinos in Manila to Charles IV in commemoration of the expedition and doubtless there remain traces of it in some of the American cities visited, but thus far I have been unable to secure any data concerning them.

SUPPLEMENT TO THE GAZETTE OF MADRID
OF TUESDAY, OCTOBER 14TH, 1806.

On Sunday, the 7th day of last September, was given the honor of kissing the hand of our lord the King to Dr. D. Francisco Xavier de Balmis, Honorary Surgeon of his Royal Camara, who had just returned from a voyage around the world, undertaken with the only object of carrying to all the distant Dominions of the Spanish Monarchy, and to those of diverse Nations, the inestimable gift of vaccine. His Majesty has shown the greatest interest in hearing about the principal events of the expedition, being extremely gratified with its results, which have exceeded even the hopes which were conceived at its beginning.

The expedition was composed of various members of the faculty and employees, besides twenty-two children, who had never passed through smallpox, and who were destined to preserve the precious fluid, transmitting it successively from arm to arm, and from one to the other during the voyage. The expedition left the Port of Coruna under the direction of Balmis the 30th of November, 1803. The first stop was at the Canary Islands, the second in Porto Rico, and the third in Caracas. On leaving this province through the port of La Guayra, the expedition was divided into two branches, one sailing towards Central America under charge of the sub-director, Dn. Francisco Salvani; and the other division pursuing its course under the direction of Balmis to Havana, and from there to Yucatan. At that province this branch of the expedition was again subdivided, Professor Dn. Francisco Pastor voyaging from the port of Sisal for that of Villahermosa in the Province of Tabasco to propagate the knowledge of the vaccine from the Royal City of Chiapas to Guatemala, toiling over the long and painful way full four hundred leagues to Oaxaca. In the meanwhile the rest of the expedition, which arrived safely at Vera Cruz, not only traveled through all the Vice-Regency of New Spain, but also the internal provinces, from which it returned to Mexico, the point of reunion.

Disseminated through every part of the northern hemisphere of America as far as the coasts of Sonora and Sinaloa, and even unto the Gentiles and Neophytes of the high Pimeria, the precious preservative against natural smallpox was established in every capital by means of a commission of the first authorities and the most zealous members of the faculties, who were to conserve it a sacred deposit, for which they will have to be responsible to the King and to posterity. The director then undertook to carry to Asia this part of the expedition, which had been crowned with the most brilliant success, and with it the great gift to humanity, and after overcoming many difficulties, they sailed from the port of Acapulco to the



Statue to Charles IV of Spain, erected in Manila to commemorate the vaccination expedition of 1803-1806.

publicly, commends itself to those who look for contributions to medicine from clinicians and the inductive method and who deplore the reasoning from single cases and single observations.

It must have been gratifying to Jenner to have received the account of Charles IV's expedition to Spain's American and far Eastern possessions in the interest of the promulgation of the doctrine of vaccination. At that early date (1803), following Jenner's first publication by only five years, it speaks volumes for the established efficiency of

Philippines, which was the limit prescribed for them, if he could reach it.

The great and pious designs of the King being favored by Divine Providence, Balmis accomplished the voyage in a little more than two months, taking with him twenty-six children from New Spain to vaccinate them successively as had been done to the preceding ones, and as many of them were from institutions, they went under the care of the matron from the Asylum for Abandoned Children of Coruna, who in this, as in the previous voyages, attended to their cleanliness with great diligence. The expedition having arrived at the Philippines, and the specific having been propagated in the islands subject to the dominion of his Majesty, Balmis, considering his philanthropic missions now ended, decided to extend the benevolence of the King and the glory of his august name even unto the farthest confines of Asia.

And in effect the vaccine had been carried and disseminated through all the vast archipelago of the Visayas Islands, whose kings, although they had lived in perpetual war against us, have laid down their arms, overcome by the generosity of an enemy, who presented them with health and friendliness when most terribly afflicted with an epidemic of virulent smallpox. Not less grateful were those who reigned in the Portuguese colonies and in the Empire of China when Balmis entered Macao and Canton, being able to preserve the fluid fresh and active, through the means already referred to, an undertaking which the English had never succeeded in doing on the various occasions when they made the effort, by carrying in ships of the East India Company, portions of pus, which arrived inert.

After spreading the vaccine in Canton as well as circumstances and political conditions permitted in that empire, leaving the further propagation to the care of the physicians of the English Factoria in this place, Balmis returned to Macao, and, taking passage on a Portuguese ship for Lisbon, arrived in that city the 15th day of last August. He stopped in Santa Helena, in which island he succeeded, as in every other place through exhortations and constancy, in getting the English to adopt the prodigious antidote which they had despised for the space of more than eight years, even when it was a discovery of their nation, and given to them by Jenner himself.

Of the branch of the expedition under Salvani, whose destination was Peru, it is known that they suffered shipwreck in one of the mouths of the Magdalen River, but found prompt succor from the natives, the immediate authorities, and the Governor of Cartagena. The sub-director, the three members of the faculty who accompanied him, and the children, with the fluid in good condition, were saved, and this latter was extended throughout the province easily and rapidly. From thence they sent it to the Isthmus of Panama, and undertaking successively (well provided with all that was necessary), the long and dangerous navigation of the Magdalen River, they stopped on both banks of the river when necessary, and went inland separately to accomplish their mission in the towns of Tenerife, Mompos, Ocana, Socorro, San Gil and Medillin, in the valley of Cucuta, and in the cities of Pamplona, Giron, Tunja, Veliz and other towns of large population, all of the members of the expedition uniting once again in Santa Fe. Everywhere they left the physicians instructed, and in the larger towns rules were given by the director, whereby they should preserve the vaccine, which was dispensed, according to the statement of the Viceroy to fifty thousand persons, with no bad effects. In the last days of March of 1805 they made preparations to continue their travels, following different directions to visit with greater ease and speed other towns of the vice-royalty situated in the direction of Popayan, Cuenca and Quito to

Lima, and the following August they found themselves in Guayaquil.

Not only was the expedition able to propagate the vaccination throughout the countries of both friends and enemies, among the Moors of the Vasayas, and among the Chinese, but also to secure to posterity in the dominions of the King this benefit in perpetuity, first through the central societies established, and secondly through the discovery by Balmis of the existence of the "cowpox" or pox affecting the cows, in the valley of Atlixco, near the city of Pueblo de los Angeles; of the same discovery by his aid Dn. Antonio Gutierrez in Valladolid of Michoacan, and in the country around Calabozo of the province of Caracas, where it was found by the resident member of the faculty, Dn. Carlos de Pozo.

The great multitude of observations taken, which will shortly be published, showing the effects of the vaccine in different climates as well as its efficacy, not only in protecting from smallpox, but also curing simultaneously other diseases, will in still greater degree make manifest the great importance to all humanity of this expedition, of which there is no similar example in all history.

Although the object of the expedition was simply to communicate the vaccine from arm to arm, to instruct everywhere in this practice the members of the faculties, and to establish rules concerning its conservation, the director has omitted nothing which would make the expedition useful to science and to agriculture. He brings with him a considerable collection of exotic plants, he has caused drawings to be made of the most beautiful objects in natural history, he has collected important facts and dates; and among the list of benefits which make him worthy of the gratitude of his country, not the least is his splendid collection of fruit trees, and other useful productions which he has brought alive, and which being propagated in similar climates of the peninsula, will make the expedition as memorable in the cause of agriculture as in that of medicine and humanity. It is hoped that the sub-director and his three assistants directed to bear the same gift to Peru, will soon return from Buenos Ayres, after they have traversed this vice-royalty, that of Lima, and the districts of Chile and Caracas, and that they will bring the collections and observations acquired in following out the recommendations which were given them by the director, without allowing themselves to be distracted from their philanthropic commission, which was so earnestly recommended them by His Majesty for the benefit of the human race.

REMINISCENCES: THE TRANSITION OF SURGERY TO ANTISEPTIC SURGERY.

By MARTIN REGENSBURGER, M. D., San Francisco Polyclinic.

In the early months of 1875 I had the extreme pleasure of being a witness to one of the most marvelous reactions in surgery.

At the *Allgemeine Krankenhaus* in Munich, v. Nussbaum, professor of surgery at the University of Munich, one day, in utter disgust, threw down his knife with the expression that he would never operate another case in that hospital. Every case he operated was infected with nosocomial (hospital) gangrene. Every wound that came into the hospital, even the slightest lesion such as a panaritium, would become infected. The mode of procedure in the operating room at this time was as follows:

The nurse would bring into the operating room a tinker's soldering pot and we students would take the soldering iron and sear the infected

wounds, reminding us of the days of Ambrose Paré. For the benefit of those who have not seen hospital gangrene, I myself having not seen it for the last 35 years, I would state that it was one of the most common complications of wounds, and its history was marked by a fearful mortality and so inseparable was the disease once assumed to be from hospitals, that Poteau (1783), the first historian of the disease, himself a sufferer from it, proposed the inquiry whether in view of the facts "hospitals were not more pernicious than useful to humanity."

The symptoms of hospital gangrene are described as follows by Guthrie:

The wound attacked by hospital gangrene in its most active form presents a horrible aspect for the first 48 hours. The whole surface has become of a dark red color of a ragged appearance, with the blood partly coagulated and apparently half putrid, adhering at every point. The edges are everted, the cuticle separating from one-half to three-fourths of an inch around with a concentric circle of inflammation extending an inch or two beyond it. The limb is usually swollen for some distance, of a white shining color, not peculiarly sensible except in spots; the whole of it being edematous or pasty. The pain is burning and unbearable in the part itself, while the extension of the disease generally in a circular direction may be marked from hour to hour, so that in from 24 to 48 hours nearly the whole calf of the leg or the muscles of a buttock or even the wall of the abdomen may disappear, leaving a deep great hole or hiatus of the most destructive character, exhaling a peculiar stench which can never be mistaken and spreading with a rapidity quite awful to contemplate.

The great nerves and arteries appear to resist its influence longer than the muscular structures, but these at last yield. The largest nerves are destroyed and the arteries give way, frequently closing the scene, after repeated hemorrhages, by one, which proves the last solace of the unfortunate sufferer.

The extension of this disease is in the first instance through the cellular structures. The skin is undermined and falls in, or a painful red, and soon black, patch is perceived at some distance from the original mischief, preparatory to the whole becoming one mass of putridity, while the sufferings of the patient are extreme. The surface of the wound soon becomes a sticky, pulpy mass of a grayish color. This substance cannot be wiped off and it resists the usual washings. If at this stage the further progress of the disease be not arrested, the patient succumbs, as from a fatal form of septicemia.

Lister's achievements were just in embryo at that time and but little was known about anti-septic surgery; there were many pros and cons. Such men as Billroth bitterly opposed the whole technic of Lister, saying that it was not the technic, but that simple cleanliness and hot water would accomplish the same results.

Pasteur's theories at that time were also in their infancy. The general theory was that there was only one source of contamination and that was the

air. Upon this theory Lister based his ideas and thought by keeping the air, and especially unclean air, from wounds he would prevent infection, etc.

v. Nussbaum determined to send his first assistant, v. Lindpaintner, to Edinburgh for the purpose of studying Listerism. In about two months he returned to Munich with all of the paraphernalia of Listerism; carbolated gauze, mackintosh (a waterproof rubber sheet), protective (a greenish oilsilk or linen), drainage tubes and catgut ligatures, and last, but not least, a steam spray.

Before the operation the steam spray was set to work and the air was thoroughly saturated with carbolic acid (mind you no gowns, no thorough cleaning nor disinfecting of the hands, etc.), then the patient was brought in and the spray was played over the field to be operated upon, and kept up to the end of the operation. Many times the operator would have to stop for the reason that his hands became absolutely anesthetic from the carbolic spray. The sutures were either catgut or silver wire; then the spray was taken away and the protective was placed directly over the wound, then eight layers of gauze, then the mackintosh and then the gauze bandage. The results were simply marvelous. If the technic was properly carried out all wounds excepting those near or in connection with the mucous membranes healed by first intention. It was marvelous to see the change in that hospital.

I remember v. Nussbaum operated upon a patient in a bathtub for loose cartilages in the knee joint, under water, for fear the air might infect the wound; it did not seem to matter what condition the water was in. Under Listerism I saw the same operation with splendid results.

About six months after Listerism was introduced into Munich, v. Nussbaum invited Lister to Munich and introduced him to the students at the clinic, and this is where I first met Lister, the most modest man that I have ever met; a man about six feet tall and extremely bashful; while he was being eulogized before the students his lips would twitch from embarrassment. After Nussbaum had praised him up to the skies, calling him a second Saviour, Nussbaum fell upon his neck and kissed him and his embarrassment and modesty were really painful to observe—the great man almost collapsed.

In 1876 I visited Lister in Edinburgh and was received by him as though he had known me for years, and I dined with him on an average about twice a week for four months. His wife was the daughter of Syme, and she was just as homely as her father.

At the old Edinburgh infirmary, which had outgrown itself, it was not uncommon to see three patients in one bed, two lying one way and one the other, and all doing well, septicemia, etc., being a thing of the past.

In 1873 I took a semester at Berlin. Among the courses I took one with v. Langenbeck on operative surgery on the cadaver, from six to eight in the morning; one morning I remarked to one of my colleagues that the cadavers were all black.

On close inquiry it was found that we were operating upon cholera cadavers, which at that time seemed almost criminal.

An episode which has never been published, of which I was a witness, occurred at a post mortem made by Virchow. It was at the medical clinic of v. Frerichs. A case of trichinosis was being demonstrated, and in order to see the trichina v. Frerichs took a harpoon, dug it into the patient's biceps (antiseptic precautions were absolutely unknown), and the piece of muscle was placed under the microscope and the trichina was visible; four days later the patient died of pyemia, and was posted by Virchow, who prefaced the post mortem with the remark, imitating in his solemn way the speech of v. Frerichs, "gentlemen, another sacrifice to our science."

In Paris I saw Verneuil, when the thermo cautery was in its infancy, take a grooved sound and introduce it into the bladder, running the cautery along the sound into the bladder for the purpose of removing a stone.

Dr. Levi C. Lane was also present at this criminal operation. What became of the patient I never could find out.

When I came back to San Francisco I brought all of the material necessary to carry out Listerism and introduced it into the City and County Hospital under Douglass, Professor of Surgery in the Medical College of the Pacific, and later the Cooper College.

Douglass was an excellent surgeon, but very slow to introduce innovations, and in using the spray he would exclaim "take that damn thing away," then I would say it was part of the technic and he would be satisfied for a few minutes and again would say "take it away." His hands would become numb during the operation and he would have to stop for a few minutes, but his results were fine.

PRESENTATION OF PATIENT TWENTY MONTHS AFTER OPERATION, FOR UTERINE CANCER COMPLICATED WITH UMBILICAL HERNIA.*

By C. J. TEASS, M. D., San Francisco Polyclinic.

This good woman who has kindly consented to come before you to-night is sixty-one years of age, and as you see is very large, weighing 220 pounds. Her past medical history has nothing of special interest as far as her recent trouble is concerned, though as a child she had scarlet fever and diphtheria. Her menses began at the age of twelve years and were always painful, and she would flow seven to ten days. Was married thirty-four years ago and has had two children with normal deliveries. The youngest is twenty-three years of age. She has also had one miscarriage. Nine years ago patient ceased menstruating entirely, and did not see any sign of blood from the vagina for a year and a half, when she noticed a little bloody discharge, but as she was told by kind advisers that the menses would sometimes return, she did not bother further about it, until she began to have real hemorrhages with great pain. This caused her to seek relief at the hands of her physician

down in Texas, who at once sent her to the hospital to a surgeon for operation, but when the surgeon examined her he told her the liver was involved so he could not operate on her, and as she had a brother here in California was advised to come out here, which she promptly did, reaching here April 9th, 1912. She came to the clinic at Cooper Medical College, where I was then working on April 11th. A section was taken from her cervix and sent to the laboratory and report came back with diagnosis of malignant epithelioma. She entered Lane Hospital, and on the morning of April 20th, Dr. Beasley kindly cystoscoped her bladder and catheterized her ureters, and as these did not seem to be involved in the growth, though the right side was fixed and the upper third of the vagina was involved and a large umbilical hernia was also present, I determined to do as radical an operation as possible, owing to the intolerable condition the patient was in, and begging to have something done. A median abdominal incision was made extending not quite to the umbilical line, as you see by this scar. The bladder and rectum being freed from the uterus and the pelvic contents being dissected out en masse with the upper third of the vagina, leaving the bladder, rectum and ureters intact. A large gauze drain was packed over the raw dissected area and its end pushed out through the vagina. The peritoneum was now carefully closed over this so as to exclude the abdominal cavity proper. The umbilical hernia was now seen to consist of an enormous quantity of necrotic omentum; this was fairly pulled out by the handfuls, the omentum ligated off and the fascia overlapped *from within the abdominal cavity*, with the result that you now see the umbilicus retracted instead of protruding. The patient since the operation has been passing more or less sugar in the urine, otherwise is apparently well and enjoying life.

The patient whom I have presented to you is one of an even half dozen I have had the opportunity of operating upon for uterine malignancy during the last three years, and though I am cognizant of the fact that, so few cases before the five-year limit have absolutely no meaning when thought of from a statistical point of view, but when considered from an humanitarian standpoint it is not only justifiable but obligatory that these patients be given the benefit of such relief. Of the six cases referred to there has so far been one death, and that was primary. The poor woman not only had an advanced uterine carcinoma, but the cecum was involved with a translucent parchment-like area of about the size of a fifty-cent piece which ruptured at the slightest touch, and though this was carefully resected the patient died of peritonitis. I am likewise mindful of the fact, however painful it may be, to my way of thinking, that the operation is not only *not* popular among the laity but with a great majority of the members of the medical profession as well. The principal reason for this deplorable state of affairs is undoubtedly due to its high primary mortality, which, as Peterson states, would reach twenty-five per cent. if all reported and even fifty per cent. of all unreported cases could be collected. With this

* San Francisco Polyclinic Clinical Society, Dec. 3rd, 1913.

fact clearly in mind I have no hesitancy in strongly urging the radical operation to every patient who may chance to come under my care, and console myself with the all-important fact that, without operation a rather slow, distressing, loathsome death is inevitable. It necessarily follows, however, that the entire status of the case be put up clearly to the patient herself, in the light as we ourselves understand it with the present state of our knowledge, and I have to meet my first case where the rational patient herself will not only submit but actually demand that she be given the chance of relief, though she is at times compelled to do this in hostile opposition to other members of the family or perchance some kind medical adviser as well.

Any man of experience who has given the subject much thought, will necessarily agree with Dr. Peterson of Ann Arbor, to the assumption that the operation under discussion would be more generally adopted if at first the profession and the laity could be so educated regarding uterine cancer that the disease could be recognized earlier and the patient come to the surgeon when local and general conditions combine to bring about a low primary mortality and, secondly, if the occasional operator could be eliminated, for which, if any operation, this certainly requires some preparation in the line of specialization.

The time limit of the paper will not permit of taking up all the symptoms of uterine carcinoma, but I cannot refrain from speaking of the absurd pertinacity with which the laity, and I am ashamed to mention many members of the medical profession, associate hemorrhage at the menopause with a perfectly normal transition which the woman is supposed to "go through" at this period of life. This pathetic sad "belief" is responsible for a world of suffering, and the untimely death of many a poor woman. Even perchance, the woman may have been examined and some sort of thickening discovered in or near the uterus she is told that it is a tumor and will disappear when she gets through her changed life. (This may be the change to the next life.) I have in mind one such poor, patient woman who came to me a little over a year ago who had been receiving advice for five years previously "going through change of life," until her vessels had been so drained of blood, as the result of a large myxofibroma undergoing malignant degeneration, that the best that could be done before operation was to get her hemoglobin up to 28%, but fortunately she reacted from the operation exceedingly quick and is now wonderfully well and quite happy. In the present state of our knowledge it would be well if every case of metrorrhagia in women past thirty-five years, was held to be cancer until the condition was proved.

I am afraid few of us in the past have taken sufficient thought to realize that in certain communities the death rate from cancer exceeds that of tuberculosis. The only excuse one can conceive of for there not having been as strenuous a campaign waged against cancer as there has been for some time past against tuberculosis is due to

the fact that, unlike tuberculosis, the cause of cancer is shrouded in mystery, for that reason we are not in as good a position to enlighten the public as to how the disease is to be avoided. But until such an epoch-making period illuminates the medical history I can conceive of no condition of things that would warrant us any longer in withholding from public edification what significant facts have been brought out by experience and observation up to the present time of this most appalling of all human afflictions. This is particularly true of cancer of the uterus, and again perhaps this is another reason why a more general definite knowledge of its early diagnosis is not manifest as there is a delicacy about printing such things, for the subject is naturally very distasteful to the general reading public, so outside of the literature which is especially intended for certain trained bodies of women, as for instance, the "Trained Nurse," we must mainly rely for the dissemination of knowledge through the "spoken word," such as lectures, personal conversation before women's clubs, or social settlement organizations, teachers, etc. Particularly every trained nurse should be made thoroughly familiar with its early symptoms, and it would be well to inaugurate reviews of the subject before every meeting of all medical organizations, for it is only by persistent reiteration of the subject that a lack of interest can be avoided, and though it is bound to be a long, hard fight we can rest assured that by persistence and time results will certainly come; again, by the time the people become aroused by the wonderful importance of the subject, there will naturally be created a desire for them then to read every authoritative article they can get on the subject, so in this way it would not be a great while before cancer education in this country would even excel that prevailing abroad.

Weibel states that the primary mortality in Wertheim's Clinic was 30% in the first 100 cases, but this number was constantly reduced, amounting in the fifth hundred to only 15%, and is now under the last 175 cases, just 9%, including every death in any manner connected with the operation. The women died mostly of peritonitis, paralysis of the intestines, degeneration of the heart, embolus, pyelonephritis.

He goes on to state that, "This excellent effect of their efforts to diminish the danger of the operation was not attained by any especial selection of the operated cases; it is a success of continually improving the technic and the correct use of the anesthetic."

Now I wish to take exception to this over-enthusiastic statement, especially from the point of selected cases, as I know from personal observation from examining patients with Dr. Weibel in this very clinic, that the cases for the radical abdominal operation are selected with considerable detail and care. They refuse to operate on cases which they consider hopeless for permanent cure—even though just temporarily relief could be afforded to the poor, suffering woman, with always that element of hope which adds another chance. This is the usual continental favoring of the pure-

ly scientific, rather than the humanitarian side of the question. And yet with this careful selection their statistics show a fifth of all the cases examined in the clinic permanently cured.

Clark, of the University of Pennsylvania, while working in the Kelly Clinic at Johns Hopkins University, as far back as 1895, advocated the radical abdominal operation, three years before Wertheim's, was encouraged by Dr. Kelly himself and after considerable experience he deducted the following conclusions:

1st. The absence of any known law concerning metastasis for the glands of the side of the greatest local involvement may be free while the parametrium or higher glands of the opposite side may show microscopic foci.

2nd. The unreliability of the microscopic appearance of a gland in determining metastasis, for a large, palpable gland may be removed painstakingly from the bifurcation of the iliacs found to be of an inflammatory character only, while an invisible lymph radicle, or a microscopic focus, immediately adjacent, may be the lodgment place for cancer cells.

3rd. The absence of any law as to what type of case gives metastasis. A very limited local process may show wide glandular metastasis, whereas the opposite may be true in extensive involvement.

4th. The peculiar distribution of metastasis in that occasionally a low group of glands may escape metastasis, whereas those above are involved.

From my own limited experience I am in thorough accord with these deductions, hence my excuse for always harboring the hope of being able to afford some degree of relief to any poor sufferer who may put her fate in my hands, whether the condition on the surface of things seems incurable or not.

Since formulating the preceding notes, a patient was admitted to my service at the City and County Hospital, seeking relief from the effects of excessive menstruation and a distressingly foul discharge. Upon the day of her admittance the interne—Dr. Silverman—removed a small section from a cauliflower-like growth involving the cervix and sent the same to the pathologist. The day following this, the patient developed a slight rise in temperature. This slight added toxemia to an already profound anemia was sufficient to interfere with the proper action of the cells of her brain to such an extent that she became imbued with the idea that she had been operated upon and was well, so it was with difficulty that I could examine her at all. Indeed, I was finally compelled to place her on the table by main force and thoroughly cauterize the growth of the vagina and cervix. After this she was so decidedly improved in every particular that she graciously submitted to several repetitions of the same treatment until she had finally reached such a physical condition that I had determined to do the radical operation, when she suddenly determined to leave the country for her home in Germany and left the hospital before I could persuade her to submit to such a radical piece of work.

This was one of those rapidly growing malignant involvements without giving rise to any pain at all. Indeed, it is only too sad that these poor unfortunate beings do not suffer severely with pain right in the beginning of the malignancy, for if such were the case they would be driven to seek relief sufficiently early to make one reasonably certain in holding out to them the reasonable promise of permanent cure.

THE GREEN OPERATING ROOM AT ST. LUKE'S HOSPITAL.

By HARRY M. SHERMAN, A. M., M. D.,
San Francisco Polyclinic.

The difficulty I have had in seeing into the mouth of a small child to properly trim and suture the soft palate and uvula, in cases of cleft palate, led me, some ten years ago, to use black cloths around the mouth instead of the ordinary white toweling. With the white environment, the hollow of the mouth is in the deepest shadow and cannot be comfortably seen, unless it be specially and over illuminated, as by the wearing of a headlight by the operator. With the black environment, however, the mouth is in the high light, not in the shadow, the pupils of the operator are not dominated by the light reflected from the white towels, and ordinarily bright daylight is ample illumination for the work in the back of the mouth.

The discomfort I have had in the present-day white operating rooms led me to suggest that we have dark floors and wainscots in these rooms, so that the operator who looks up from a wound shall not encounter a glare of light and find his eyes useless for a moment, as he looks back into the less well illuminated wound. The color scheme, it seemed to me, should start from the red of the blood and of the tissues, therefore I advised that green, the complementary color to red, should be chosen for the color of the floor and wainscot. The particular shade of green to be selected was that which was complementary to hemoglobin, and it was found to be the green of the spinach leaf. Incidentally it may be said that the iron in the chlorophyl of spinach is said to be in the same chemical combination as is the iron in hemoglobin, but I know nothing of the value of this, in making spinach green complementary to hemoglobin red.

A room painted in this way, the floor and the walls for six feet from the floor, a bright spinach green, and all above a glazed white, was matched for use against a room painted a glazed white—floor, walls and ceilings—in the little operating pavilion built at St. Luke's Hospital just after the fire. No one who could get into the green room to do an operation ever went into the white room, and after some months of this experience the point was accepted as settled sufficiently to warrant the innovation of a room similarly colored in the operating suite in the new hospital. Here, however, we could not get in tiles as close an approximation to spinach green as we could in paint; the tile for the floor had to be duller and darker and that for the wall darker, but the two shades harmonize, and answer the purpose perfectly of pre-

venting the bright daylight from being reflected upward from walls and floors into the eyes.

Above the level of the six-foot green wainscot is white encaustic tiling to the ceiling, and the ceiling itself is a bright buff. This arrangement imitates fairly well the optical environment out in the fields or among low bushes, where the ground of the surroundings, to above the level of the eyes, is green, and the sky overhead is full of white daylight. This again is the optical condition for which the eye was originally adapted by natural selection, and it seems only right to reproduce the condition for the eye when it is to be relied upon for quick and accurate work; while the conditions of greatest eye-strain—the dead white and glare of snow on ground and bushes—is the optical condition reproduced by the white rooms and the white furnishings.

The green room is lighted by a window which gives us a northern light, and it reaches from about three feet above the floor up to the high ceiling. At first this window was glazed with ground glass, but it was at once seen that the room would bear much more light than the ground glass permitted, for the excess of light, the useless light which fell upon the floor and the lower

that the light reflected into the operator's eyes by the white sheets and toweling was as dazzling and as interfering as was that reflected from the floor, and so the same color scheme was followed out, and green toweling and green sheets of galatea were provided. The color in these, however, did not stand the superheated steam in the sterilization. They became a dingy gray. I then decided to surround the whole operation field with black, as giving a surface from which no light whatever could be reflected, using it around all wounds, as I had used it around the mouth in cleft-palate operations and around the vagina in operations there. I not only had sheets and toweling of black, but I had black gowns made, and the coverings for the instrument tables were all of black, and I found that they were exceedingly satisfactory. The only objection I have heard urged against them was the superstitious fear that people coming up for operation would see this sombre accoutrement and consider it a color of bad omen. This has proved to be a groundless fear, for patients who have had work done upon them under local anesthesia have expressed no objection to the black dress of the operator, nurses and room.

In the new hospital, as in the old operating



GREEN OPERATING ROOM

part of the walls and could not be reflected thence on to the operating field, but could be reflected from a white floor and white wainscot in the eyes of the operator, was all absorbed by the green floor and wainscot. Therefore, the ground glass was taken out and transparent glass put in, giving a distinctly brighter illumination of the operating field. In working with this it was soon noticed

pavilion, there is a very decided preference among operators for this green room, as against the other operating rooms, which are finished in the conventional encaustic tiling; and those operators who have taken advantage of the whole equipment, and have used the black table-coverings, toweling and sheets, and the black gowns, have appreciated the improved optical conditions which they gave, for

the eye was not compelled all the while to receive light rays from every direction when the only rays it wished to receive or needed were those that came from the wound itself. Under ordinary conditions, the eye might be considered as trying to keep out, by pupil contraction, all the extraneous light, and at the same time trying to let in, by pupil dilation, all it really wished to get from the wound; all of which was a definite over-strain of the accommodative and visual capacities of the eye, which would conduce certainly to nerve-fatigue and consequently to general fatigue. Indeed, it has not been uncommon in this and other hospitals to hear nurses who had to spend a good part of the day at their duties in the operating room, complain of the effects of the brilliant white environment.

I think we should have long ago learned this lesson in optics from our co-workers in the laboratories, for no one ever saw in a laboratory where the microscope was to be used, white tables, benches and shelving. On the contrary, these are stained a dead black; and in this connection it may be mentioned that some years ago Dr. George M. Gould, then of Philadelphia, suggested that newspapers should be printed in white letters on a black ground, for in the present printed page, with black letters on a white ground, we see the white ground but not the black letters, and we read really from the shadows of these letters, cast on the retina. On a black page with white letters we would see the letters and not the page, and while the effect, so far as understanding was concerned, would not be different, in the one we would be conserving eye-energy, whereas in the other we would be and are overworking the eye unnecessarily. The eye is a long-suffering organ, and we are conventional people, resistant to innovations, but whoever takes the trouble to study, either theoretically or practically, fatigue in its relation to efficiency, will learn that the conservation of energy, even in such matters as saving eye-work, where that is possible, is a valuable consideration, and those of us who have long and difficult operative procedures to do will find that this conservation may easily be a deciding factor in success or failure of fine manipulations.

We have tried to test light efficiency in the two kinds of rooms by a test-card such as is used by oculists, put into the bottom of a pasteboard box, which was lined with black. We found that it could be read, down to the smallest type, in either room, but it was plain that it was much more comfortable to read it in the green room, and that probably is the measure of the room's value—that you can work in it with much greater comfort than you could in a room where the optical conditions were more trying. The acme of discomfort would be, I should imagine, what I once saw in an Eastern hospital, where the operator was working in a brilliantly lighted, dead white room, and had to wear an electric headlight to over-illuminate his field, in order to see in spite of the glare. In the same room I provided myself with yellow spectacles to put on to protect myself from the discomfort of the light.

BLINDNESS FOLLOWING INJURIES TO THE BACK OF THE HEAD.

By L. NEWMARK, M. D., San Francisco Polyclinic.

Given a patient who has sustained an injury to the back of his head and is found to be deprived of his power of vision without showing any ocular changes: the physician will find in the following observations what he may expect in regard to the restoration of sight:

There is on record¹ the case of a boy, aged 12 years, who one morning at a quarter past eleven o'clock was run over by an automobile. He was immediately taken to a near-by hospital, where he revived after very brief unconsciousness and loudly lamented that he could not see. Between lambdion and external occipital protuberance there was a laceration, the periosteum was separated from the bone, but there was no fracture. There was total amaurosis, all sensibility to light was absent. The pupils, a little more than middling wide, reacted to light, but very sluggishly. The backgrounds were normal. By 2 p. m. he could already perceive large white objects, at 6 p. m. he could count fingers at a short distance. There was now found a right homonymous hemianopsia, the dividing line almost reaching the fixing point. Pupillary reaction had become prompt. There was an indication of amnesia aphasia. On the day following the accident the visual fields had extended toward the right, and in another day they had become normal. There was no diminution of visual acuity.

This was a very transient blindness. The boy's perturbation might have suggested traumatic hysteria, but the hemianopsia would seem to disprove that. It looks rather as if the visual centers in both occipital lobes had been affected, the right hemianopsia remaining for a while after the right occipital cortex had recovered. We will agree with the author in assuming a commotio cerebri, for the restoration of vision was too rapid for a hemorrhage.

In the following case a bilateral occipital hemorrhage appears to explain the blindness which ensued upon the trauma to the skull:

F. M., a youth of 21, was engaged on January 15, 1903, in a prizefight, which was terminated by a blow upon his jaw. He was thrown with great force upon the back of his head and the impact was so violent that it drew from the experienced referee the exclamation that it would prove fatal.

When I first saw him, eleven days afterward, there were the signs of a contusion on his occiput, but the surgeon had not discovered any fracture of the skull. The patient was passing urine and feces into the bed, and a decubitus was forming on the sacrum, but he was not unconscious, for, although he generally lay motionless, with his eyes closed, he could be roused by persistent calling, and would then give short, pertinent answers.

It could be made out that there was a reduction of motor power in the right extremities, but not in the face or tongue, and of sensibility throughout the right side, including astereognosis of the right hand; but the knee-jerks, heel-reflexes, and the reflexes of the upper limb were not livelier on the right than on the left side. There was a distinct Babinski extension sign in both feet. Hearing with the right ear was evidently affected, for he did not recognize the presence of a watch even

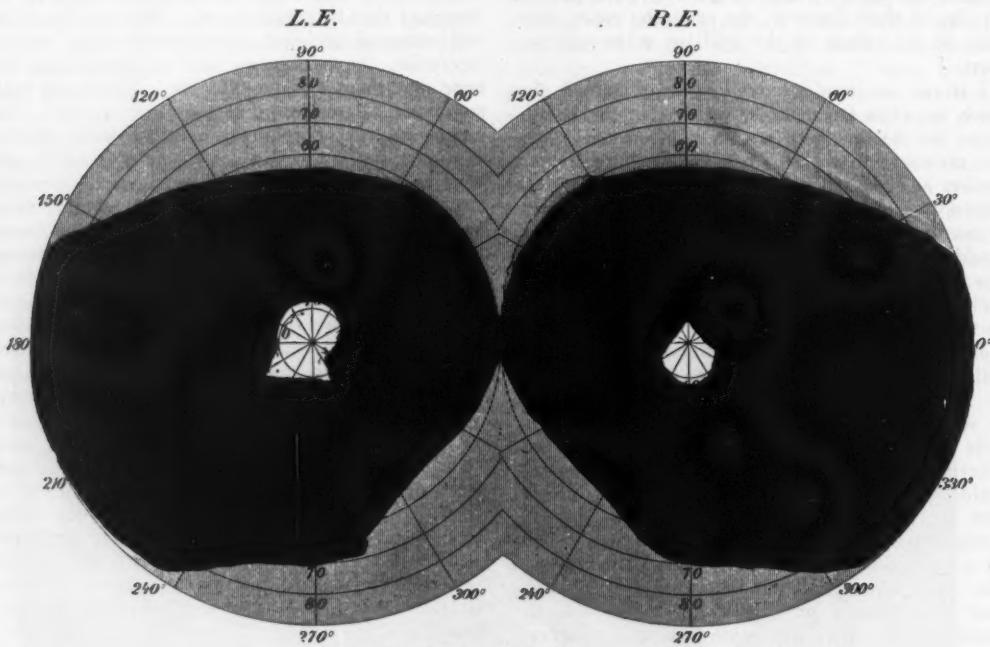
1. Camilli Hirsch. Ueber passagere Blindheit durch Commotio cerebri. Deutsche Medizinische Wochenschrift, 1910, page 1436.

when it was in contact with that ear (which was not found to have been injured), while on the watch being applied to the other ear he would say he heard "the ticking of a clock."

What interests us now especially, however, is that he seemed to be blind. The sudden approach of a finger or other object to either eye never caused him to wink. When asked to recognize a face close before his he would ask "Where?" and fail to see it. When the light of a lamp was concentrated upon his pupils by means of a lens he gave no sign of perceiving it. In no part of the field could he be got to evince sight of any object, no matter how bright. And yet he persisted in saying that he could see. To the question, "Frank, can you see?" he regularly replied, "Of course I can see."

For reasons which it is unnecessary to set forth here we had no opportunity of testing the visual fields with the perimeter until the 24th of April. The diagrams made on that date by Dr. J. R. McMurdo show the small residual fields for white, and another set, the work of Dr. E. K. Hopkins, made in November of the same year, exhibit only a slight difference. Such tests as were made on one or two occasions some years later did not show a material widening of the fields.

Without entering into many interesting details which would not be relevant to the object just now in view, it remains to be said that the patient's memory suffered severely from the injury to his head. There was retrograde amnesia and for a considerable period an inability to retain new impressions even for an extremely brief time. The



FIELDS FOR WHITE OF F. M.

By February 9 he seemed able to distinguish movements of a hand, but when asked whether he could discern anything in the room he drew upon his imagination and answered "A kid" or "A man with a bicycle." Nine days after this there was the first demonstration of visual power exceeding the mere ability to distinguish light and darkness and to perceive the movements of an object: a watch being held before him, a little below the level of his eyes, he slowly made out that it was "twenty-eight minutes past ten,"—which was correct. It seemed clear now that he had good central vision, but only a very limited field.

On February 25 it was noted that at a distance of six feet he counted fingers correctly, and recognized and named a number of other objects successively held up before him. This naming of objects would suggest the absence of amnesic aphasia, but this aphasia was found to exist in regard to colors on March 5, when, although he could find the true appellation for "white," he could not find it for "red" or "blue," but showed his ability to distinguish colors by selecting the correct name from among several mentioned to him. Two weeks later, however, he had no difficulty in identifying colors and naming them. He read with ease. Throughout the whole period of observation there had been no changes in the ocular apparatus.

hearing returned early to the right ear, the right extremities regained their motor power, and there occurred gradually a not inconsiderable improvement in his memory; but the astereognosis of the right hand remained, associated with a similar disturbance in the foot, and the defects in the memory were never overcome sufficiently to make it trustworthy. He died in 1912 in consequence of an ulcer of the stomach, as I was informed. The information reached me too late to enable me to procure the brain.

From such a case as the foregoing the attendant upon a patient who is, or appears to be blind after an injury to his head which has not affected any part of the eyes will derive the hope of at least the restoration of central vision. What will naturally strike one is the patient's persistence in the denial of blindness when the observer cannot convince himself of the existence of sight. In cases of softening of both occipital lobes temporary amaurosis is commoner than permanent blindness; and these patients too may be as unconscious of their blindness as the patient just described. In some of them one will suspect that in a minute circle around the fixing point there remains sensibility to light.

In still another instance which I have observed of the effect upon the vision of a trauma to the back of the head the return of a useful degree of sight was delayed much longer than in the case which I have cited and the one I have described. We are again impressed by the patient's indifference to his blindness. He is a child who in October 1912, when he was a little over four years of age, fell from a moving vehicle. He suffered a fracture of the clavicle, had a large hematoma at the occiput, and remained unconscious for three days. The X-ray satisfied some of those who attended him of the presence of a fine linear fracture in the occipital bone, concerning which, I am informed, others were not free from doubt. When the child revived, he was found to be blind. The oculist who first examined him declares that the backgrounds of the eyes were normal. A number of observers who occupied themselves with the case during the six months following the accident could detect no evidence of vision, but the child never complained, and he displayed none of the timidity to be expected in those who walk in darkness. "He floundered about," says one who saw him in the earlier period of his blindness; "he went at things as if he did see them," says another who examined him later. The little fellow himself, when questioned about his perceptions, declared that he saw nothing. He knocked against things continually, or fell down stairs. But after the lapse of about six months he regained sight: how much, it has not yet been possible to determine accurately, for he cannot be induced to fix his gaze with sufficient steadiness to make a perimetric register possible. It is only his lack of understanding, proportionate to his years, and his playfulness which prevent precise examination, and as he is under the observation of a skilful ophthalmologist it is to be hoped that time will bring its opportunity for trustworthy results. That time will bring further change in his visual power I am disinclined to assume, for what has been restored seems not to have increased for some time past. His central vision seems to be good, but we think that the field is very narrow. If an object be placed upon the carpet, from the color of which its own color differs so little that it requires considerable visual acuteness to detect it, the boy will pounce upon it from a distance when it comes within his field; but in his search for it, as also for brighter objects, his perisopic efforts are abnormally prolonged.

There has been a divergence of opinion as to the nature of the visual trouble in this case. It has been already stated that the oculist who first observed the patient after the accident considered the discs normal, and that is the opinion of the oculist under whose care he is at present. Others declare, with more or less doubt, that the discs are atrophic; one expresses the view that there are atrophic changes in the discs, but that the loss of vision is not to be ascribed entirely to these, but in greater part to lesions in the optic pathway, and that the atrophy is a descending one. And, finally, the deprivation of vision has been interpreted as a symptom of traumatic hysteria.

My own judgment is that the blindness in this child was caused, like that in the other cases, by a traumatic affection of the occipital lobes, shock being assumed sufficient in the first patient and hemorrhage appearing more likely in the second and third. It is hoped that from this little group some practitioner, who may find himself in the presence of a case similar to those which compose it, may derive justification for relieving anxiety by a comparatively favorable prognosis.

RECOLLECTIONS OF THE LISTERIAN EPOCH.*

By CHARLES G. LEVISON, M. D., San Francisco Polyclinic.

The subject that I have chosen for my paper this evening is of perennial interest, for it has exercised an incalculable influence upon the evolution of modern medicine.

The name of Lister is so well known to the fraternity that it needs no introduction, but unfortunately this is not the case with the layman, who is quite uninformed regarding the remarkable achievements that have been accomplished in medicine, and it would seem an almost hopeless task to properly educate him. In this connection I have often, in conversation, inquired of people whether the name of Lister was known to them, and the response has almost invariably been returned: "Oh yes; he is the man that makes the Listerine." I repeated this to Sir Charles Ball when he was here delivering the Lane lectures a number of years ago, and he was very much amused. He laughed heartily and said that he was going to tell Sir Joe about it. At that time Lord Lister had not yet been elevated to the Peerage, which event took place in 1897 and it was the first time that any medical man had been so honored.

I have been particularly interested in Lister as a man as I had the privilege of knowing him personally. It was in the summer of 1892 while he was still teaching surgery in Kings College, London. One year later he retired from active work.

I visited him as a student and was received most graciously, and during the several times that I saw him he addressed his remarks particularly to me instead of to the students. He took me through the wards and he removed the dressings from the patients to demonstrate the action of the cyanide of mercury gauze that he had introduced into surgery a short time before. His modesty and simplicity were extreme and one would never have recognized him as one of the most important influences of all time. An example of his great modesty was shown at an International Medical Congress at which both he and Pasteur were present. In an address that he delivered, he stated that Pasteur was the only one that deserved any credit for the discoveries that he (Lister) had made.

An episode occurred some 12 years ago while I was visiting Dr. H. O. Marcy of Cambridge, Mass., and in my opinion it is of great interest. Marcy was the first to bring the antiseptic system to the United States and it is a commentary upon

* Read before the San Francisco County Medical Society, March, 1914.

the difficulties that the innovator has always experienced in medicine. The opposition that Lister had to overcome previous to the time that his method was accepted in England was only a repetition of what many others had experienced before. The bitterness and animosity that he was made to feel were accorded to Marcy upon his return to this country. The following is the story as it was related to me by Marcy:

Marcy went abroad in 1869, having graduated from Harvard Medical School. He spent some time in Berlin, after which he contemplated going as a special student to Simpson at Edinburgh.

His plan was interrupted because of Simpson's sudden death. As the great surgeon Syme was his successor Marcy decided to go to Edinburgh; when he arrived there he learned of Syme's illness and death. At the funeral services he was attracted to one of the mourners upon whose arm a tall lady in black was leaning. This man was conspicuous because it was apparent to Marcy that he was being avoided by all of those present. He inquired the name of this person and he was informed that he was Syme's son-in-law, that he was "that man Lister who was talking about antisepsics," and the advice was given him that if he expected to receive any consideration in Edinburgh that it would be better for him to have nothing to do with Lister.

Marcy's curiosity was aroused and he determined to make the acquaintance of Lister, which he did. He was received with more than ordinary kindness and it did not take him long to be impressed with the results that Lister was obtaining in the few beds under his control, and he became a special student, each day growing more enthusiastic with the new doctrine in surgery. When Marcy returned to Boston in 1870 he had great difficulty in convincing the New England people of the merits of the new system.

Prof. Bigelow, who at that time was the greatest authority on surgery in New England, and many others, refused to be convinced of the value of the method and soon condemned it. Truth, however, finally prevailed.

As I listened to the story told me by Dr. Marcy, who possesses a powerful personality, I was very much impressed. Dr. Marcy has made many contributions to surgery; the introduction of the kangaroo tendon has been of great importance and as far as I have been able to learn he preceded Bassini and was the first to devise a radical operation for the cure of hernia.

The only experience that I have had with the Listerian method was in the Czerny clinic at Heidelberg in 1890; at this time Czerny was still employing the old carbolic spray as it was first devised by Lister. One came into the amphitheatre to find the windows and all of the paraphernalia of the operating room covered with steam produced by a spray of a 1% carbolic solution. This period represented the last gasp of the old carbolic system and shortly afterwards asepsis was adopted. The latter is based upon Koch's investigations and it still remains the only method in use.

The impression prevails among those who are

unfamiliar with the life of Lister, that it was largely a matter of accident and random thought that converted the teachings of Pasteur into a tangible system. It was Lister's good fortune to inherit a spirit of investigation from his father, who was a merchant, but who devoted his leisure to scientific pursuits, and he will always be known for having solved the problem of the achromatic system of lenses. He was a deep thinker, an active scholar and an excellent draftsman, so that it was quite natural that Lister's education should have been directed along the lines of investigation. As a student of Sharpey, the great London physiologist, and Graham, the chemist, Lister became interested in these sciences so that he was properly trained to take up the research work that involved endless patience and labor that extended over a period of many years. These experiments, together with the fact that he was a logical thinker, brought him to the point where with almost mathematical calculation he evolved the theory of antisepsis. This theory was based upon the researches of Pasteur, which were commenced in the early "60's." Having seen one of the original flasks employed by Pasteur in his experiments, I feel that there is a slight personal association with this era.

The epoch-making work of Pasteur in the field of fermentation is well known to every one and it was done when he as a young man had been appointed Dean of the Faculty of Sciences to the University of Lille.

In this city the products of alcoholic fermentation were the principle articles of manufacture and Pasteur proceeded to investigate these processes. Following out the experiments of Cayard Latour he was able to confirm the fact that those bodies which produced fermentation were the cells of a microscopic fungus. He also discovered that all true fermentations and putrefactions were caused by the growth of micro-organisms. He demonstrated and proved with absolute certainty that the doctrine of spontaneous generation was incorrect and that none of the minute beings that decomposed organic substances originated *de novo*.

The apparatus that made it possible for Pasteur to demonstrate to even the most skeptical that his experiments were correct, will be briefly described.

Glass flasks with narrow necks were filled with yeast, bouillon and other solutions that were known to decompose easily; these liquids were boiled and the necks of the flasks were then sealed with a blow-pipe. If the neck of a flask was broken, the air of that locality would rush in and occupy the existing vacuum and would carry with it living organic matter which would cause the decomposition of the fluid. When one of these flasks was opened in a room or in a forest, multitudes of growths would make their appearance, developing in the form of decomposition of the fluid contained in the flask; but if the flask was opened in a cellar long unused, where the suspended organisms might be expected to have fallen to the ground, there was no change in the fluid; when this was done in the Alps above the altitude of dust or floating particles, the result was the same. In other words,

when there were no floating particles in the atmosphere, neither fermentation nor putrefaction took place.

The second flask devised by Pasteur and the one of greatest importance in solving this complicated problem contained a clear bouillon; the neck was bent at a right angle with its open end directed downwards. Pasteur conceived the idea that the particles of organic matter in the air would not pass upward at any time but always gravitated. His experiments showed that even though this flask contained decomposable substances the contents never became contaminated. When the soup was placed in the flask it was filtered clear and then boiled. It was in 1890 that I saw the flask that I have mentioned above. It had been in the possession of Professor Kühne, the Heidelberg physiologist, for 25 years. The fluid was absolutely clear and it confirmed without controversy Pasteur's original observations, which of course had been accepted as correct many years before.

The far-reaching influence of this last experiment has been recognized by the French Government, and there is erected in the court of the Sorbonne a statue of Pasteur holding in his hand one of these flasks with its beak turned downwards.

It was these experiments that gave Lister his first thoughts in his attempt to obviate the terrible hospital gangrene and the virulent suppurations that occurred in almost every wound that was brought into the hospital.

The layman of this period has not yet emancipated himself from the traditions that associated the hospital with death, and despite the fact that surgical operations at the present time are generally successful, the horror of hospitals has never been entirely eradicated from the public mind.

In order to appreciate what the practice of surgery consisted of prior to the Listerian epoch one has but to refer to any of the older works to realize that it involved to a large extent amputations following compound fractures. The ligation of vessels, a procedure almost obsolete in the surgery of the present day, was also frequently practiced. Hospitals were in reality dead houses as a result of the terrible hospital gangrene that infected almost every wound that was brought into the ward. Operations were performed by surgeons clad in Prince Albert coats which were stiff with blood. The surgeon carried wax silk ligatures in the lapel of his coat and the instruments as well as the hands were washed only for the purpose of removing the blood. It was this state of affairs that Lister encountered when he became house surgeon to Erichson in 1855. Having been impressed by the scientific researches of Pasteur he was convinced that the minute particles which were later on revealed by the microscope to be germs were the essential causes of putrefaction. He began his logical thinking, which ended in the promulgation of the antiseptic system.

To me one of the most interesting illustrations of Lister's logical deductions was shown in his observation of the following:

He recognized that a pneumo-thorax with emphysema that resulted from a puncture of the lung

by a fractured rib produced no inflammatory disturbance because the air was filtered through the lung and hence contained no putrescible substances, while an external wound of the chest invariably produced a suppurative pleurisy.

He thereupon applied these principles to the treatment of compound fractures, which at that time, as above stated, was the most serious of all surgical conditions. The hospital situation had reached its climax and it was almost the consensus of opinion that a compound fracture should be amputated immediately to avoid subsequent death from hospital gangrene.

Lister believed that it would only be necessary to dress the wound with some material capable of killing the septic germs that were always present, and the problem that he encountered was to discover a substance that would accomplish this purpose without having too strong a caustic effect.

In the year 1864 he was impressed with an account of the remarkable effects produced by German creosote, which contained a large percentage of carbolic acid, upon the sewage of the town of Carlisle, where it was shown that a small quantity of this substance not only destroyed the odor of the lands irrigated with refuse material but that it also destroyed the entozoa which usually infested the cattle fed upon such pasturage.

The first paper upon the use of antiseptics in the treatment of compound fractures and abscesses was published in the *Lancet* in 1867, and it is a matter of comment that only last month I published a paper upon fractures, and the method advocated by me for the treatment of compound fractures was practically the same that Lister recommended almost fifty years ago. As above stated, compound fractures were considered the most fatal of all surgical injuries and it was Lister's idea to obviate the putrefaction of wounds brought about by the organisms introduced at the time of the accident or subsequently during the course of treatment. He had two indications to meet. The first was the thorough disinfection of the wound cavity by carbolic acid, the second being to produce a dressing that prevented contamination.

This is what is really being done to-day without particular modification, and it represents the most advanced idea concerning the treatment of compound fractures. Lister's aim was to produce a crust and to prevent it from becoming septic. In the treatment of abscesses he was able to treat the cold abscess as successfully as we can to-day. It was well known that when a cold abscess was incised that the patient would frequently die of amyloid disease caused by a mixed infection, and if death did not occur the resulting sinus was slow to heal. Lister recognized this and he succeeded by extreme care in preventing secondary infection by means of his carbolic putty, which produced an impervious dressing. In this way he was able to cure those unfortunates who would have otherwise been doomed.

The introduction of the buried ligature is another one of Lister's contributions, and it is one that has accomplished almost as much in surgery as the antiseptic system has done. Without the

buried ligature none of the operations that are now performed would be possible.

In the pre-Listerian epoch secondary hemorrhage was very common and it was not an unusual sequel to operations. Vessels were ligated with silk ligatures which were allowed to remain long; with the subsequent infection that was very common erosions of the larger vessels were frequent, and when the ligature cut into the lumen of the vessel secondary hemorrhage occurred. This was one of the conditions that Lister encountered, and by following the precept of the doctrine of *ergo hoc post propter hoc* he arrived at the conclusions that have exercised an influence upon surgery so great as not to be reckoned with.

He had observed at an early date that a blood clot in the absence of fermentative changes underwent organization. He also recognized that a piece of dead bone which lay exposed in the bottom of the wound of a compound fracture was absorbed instead of being exfoliated, as was the case in a septic wound. This, together with other observations, raised the question as to whether the ligature might not be cut and allowed to remain buried in the wound, for it seemed to him that organic material freed from septic organisms might be absorbed as occurred with bone and blood.

On December 12, 1867, which is a memorable day in surgery, he tied the carotid artery of a horse with silk that had been steeped in a watery solution of carbolic acid. The ends were cut short and the wound, which had been treated with antiseptics, healed immediately. The success of the experiment justified the application of the principle to man, and on January 29, 1868, Lister ligated the external iliac artery with a silk ligature that had been saturated with pure carbolic acid. The ends were cut short and the wound was dressed aseptically, with the result that the healing was perfect. On December 31, 1868, he used the first catgut ligature saturated with pure carbolic acid, and from this time dates the new era in surgery.

Lister also introduced the drainage tube, which in itself is no small contribution.

There are two volumes, entitled "The Collected Papers of Lister," that give a full account of all the work that he has done.

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REMOVAL OF THE CERVICAL GLANDS IN MALIGNANT DISEASE OF THE HEAD AND FACE.

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No operation for removal of cancers of the head and face can offer any hope of permanent cure, in the majority of cases, unless the lymph glands that drain the affected area, and, as far as possible, the intervening lymphatics, are thoroughly removed. The gland-bearing tissues and, if feasible, the original growth, should be removed in one mass so as to avoid cutting or crushing the cancerous material and implanting or forcing cancer cells into the healthy tissues.

In order to accomplish this, it is wise not to consider the glands directly in the dissection, but

to study the fascias and areolar tissue whose removal would carry with them the glands draining the affected area. The surgeon should decide from the location and extent of the growth, and the palpable gland involvement, which groups of glands should be removed. The deep fascia covering the area containing these is uncovered by the turning back of suitable skin flaps, and removed together with the septa that leave its under surface and all areolar tissue and fat that lie between it and those deep structures that are to be left.

The deep fascia of the face, closely attached to the platysma, sweeps over the mandible, and being joined by numerous fibers that are attached to the lower border of the bone, forms a broad, dense sheet that covers the triangles of the neck.

It is thickest where covered by the platysma myoides and thinnest over the upper part of the posterior triangle.

It is particularly dense at the posterior angle of the jaw, where it sends strong fibers backward to form the stylo-maxillary ligament and splits to invest the parotid gland, which extends a varying distance downward between the two layers. At the anterior border of the sterno-mastoid it sends back a thin septum to form the posterior layer of the sheath of the muscle. Below it is attached to the clavicle.

About one-half inch posterior to the angle of the jaw and superficial to the deep fascia, the infra-maxillary branch of the facial nerve dips down on the neck and divides into the branch that supplies the platysma and a small filament which runs upward to the jaw and along its lower edge a short distance and then up to supply the depressor labii inferioris muscle. In the radical operation for cancer the infra-maxillary nerve is entirely removed, but in removing tuberculous glands many branches may be saved by sectioning the fascia as far as possible below the jaw and turning it upward.

The cervical lymph glands are divided into the following groups: The submental lie in a small mass of areolar tissue and fat, between the deep fascia and mylo-hyoïd muscle and the two bellies of the digastric. They drain the lip and chin, the anterior part of the lower gum and floor of the mouth and the tip of the tongue.

The lower facial glands are situated below the fascia and around the facial vessels as they run over the jaw.

The submaxillary lie on the external anterior surface of the submaxillary gland and sometimes extend in a small group back of the deep fascia down to the hyoid bone.

To certainly remove them, the submaxillary gland must be taken away with the fat and fascia of this region.

These glands are liable to be infected in almost any cancer of the face and gums and anterior half of the tongue.

The external jugular glands lie on the surface of the deep fascia back of the platysma and below the parotid gland. They surround the external jugular vein for a varying distance, sometimes extending to its middle.

As they receive vessels from the submaxillary lymph glands, the indication for their removal is the same, and this is accomplished when the deep fascia is dissected off the sterno-mastoid.

The parotid glands lie partly in the substance of the parotid and partly under the anterior layer of its sheath; they are not often involved in the operable cancers.

The upper deep anterior cervical form a group surrounding the spinal accessory nerve and lying in front of the internal jugular vein, the external and internal carotid and common carotid arteries down to the omo-hyoid muscle. I have sometimes found a few glands behind the external carotid and the chain may extend along the jugular vein to the base of the skull. These latter must be attacked above the digastric muscle. This group must be removed in all cases, and if adherent to the sterno-mastoid muscle or internal jugular, these latter must be contained in the block.

The lower deep anterior cervical lie below the omo-hyoid, extending along the internal jugular, to its junction with the subclavian. They receive branches from the upper chain and should always be removed when this upper group is palpably enlarged; they also receive branches directly from the tongue, and should therefore always be removed in cancer of this organ.

The glands of the posterior triangle form a large group that extends along the posterior border of the sterno-mastoid, and also in a fan-shaped group through the posterior triangle to the clavicle. These lie over the brachial plexus and deep cervical muscles and surround the spinal accessory nerve and branches of the cervical plexus. This group is, as a rule, only involved late in the disease, and its removal is more easily made in block with the other glands if the sterno-mastoid muscle is included.

I have seen recently a recurrence in glands of this group in a patient in whom I had done a radical dissection for cancer of the jaw six months before. The involvement of the glands of the anterior triangle were so slight that I had not thought it necessary to extend the dissection to the posterior group.

Before beginning a radical operation one should decide, as far as possible, which groups to remove. If the cancer is located on the lower lip, the supra-hyoid, the external jugular and the superior anterior carotid of both sides are probably involved. If the latter are palpable, it is probable that some cells have invaded the next group and the lower anterior cervical, and sometimes the glands of the posterior must be included in the block.

In cancer of the tongue, all the accessible glands of the affected side and those of the superior carotid triangle of the sound side should be included.

These operations can frequently be done under local anesthesia, but even if the decision is made to employ a general anesthetic, the operative area should be carefully blocked off with novocain and adrenalin to lessen bleeding and straining during the operation and prevent shock after it. Bleeding is also greatly lessened by having the patient in the sitting position during the operation and by

sequestration of blood in the lower extremities after the method of Dawbarn. It is also essential that too much be not attempted at one sitting, and these operations should be divided into such stages as the location and extent of the growth and the condition of the patient indicate. A record of the patient's blood pressure should be kept during the operation and used as an indication of the extent of removal in each stage. It is better to do these operations in two, three, four or even five stages and have a live and fairly comfortable patient, than do them in one or two and place the patient in very serious danger.

Any form of incision that will permit the separation of such flaps as will expose the deep fascia covering the block to be removed will prove satisfactory. This fascia is then incised along the boundaries of the block, and together with the underlying areolar tissue and fat, dissected off the deep tissues. When any of these tissues, such as the mandible, the sterno-mastoid or other muscle, the jugular vein, or other structure not essential to the continuance of life, are involved, they must be raised with the fascias.

The dissection should be carried from the sides of the block and converge to the area of greatest adherence and involvement.

The upper boundary of every neck dissection runs along the lower border of the mandible and along a line extending from the angle of the jaw to the mastoid process.

In cutting through the fascia, numerous vessels are severed, particularly in the region of the parotid gland. Much time can be saved here if a blunt dissector is gently inserted back of the fascia along this line and used as a guide for clamps between which the section may be made. This method will sacrifice the lower part of the parotid gland, but a tight running suture will prevent bleeding from the numerous severed veins and leakage of saliva. When the posterior triangle is not to be invaded, the posterior incision in the fascia is made along the posterior border of the sterno-mastoid. The fascia is dissected off the muscle, taking with it the external jugular vein, which has already been ligated above, and the external jugular glands. The muscle is now separated from the posterior layer of its sheath; above, the digastric muscle will now come into view. The fat and tissue surrounding the spinal accessory nerve is dissected off. The jugular vein is now exposed and carefully cleared of all tissue; the thyroid and facial branches, which usually enter by a common trunk, are carefully ligated. The common and external carotids are now dissected; the facial artery and sometimes the external carotid should be ligated and severed. The inter-digastric triangle is emptied and the submaxillary gland is pulled down and freed by the division of Wharton's duct, which should be carefully ligated with fine chromic catgut in order to prevent infection traveling from the mouth. The fascias are now dissected off the muscles of the supra-hyoid and sub-hyoid regions and pharynx, and the block is complete.

As much of the space left by the removal of this mass as possible is obliterated by suturing the

various muscles, such as the sterno-mastoid and digastric together.

An attempt is made to fill the rest with an aseptic blood clot. The skin wounds should be carefully sutured and ample drainage should be provided by drainage tubes introduced through stab wounds at proper points. These should not be removed for several days or until all flow of lymph from the cut lymphatics and serum from the contracting blood clots has ceased.

At the first sign of infection the wound should be opened and carefully packed with iodoform gauze.

I have had one case of hemorrhage from the internal jugular as a result of ulceration of the wall of the vein following infection. After gauze tamponing the patient recovered.

The patient should be kept in the sitting posture for several days following the operation.

BASIC PRINCIPLES IN ECZEMA.*

By ERNEST DWIGHT CHIPMAN, M. D.,
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Eczema was defined by Bateman 100 years ago as "a non-contagious eruption, generally the effect of an irritant, whether externally or internally applied, but occasionally produced by a great variety of irritants in persons whose skin is constitutionally very irritable." It has been said that this definition cannot be improved upon today.¹

Since Bateman three important doctrines have claimed supremacy. First, Hebra and the Vienna school contended strongly that eczema is of external origin. Following upon this came the French school with the claim that it is of internal or diathetic origin. Later Unna promulgated the theory that all eczemas can be traced to a microbic origin. Both the Vienna and French schools attracted many followers, but Unna's claims never gained wide acceptance. In recent years the most commonly held views have been that eczema is exactly what Bateman called it a century ago, viz., "the effect of an irritant whether externally or internally applied." There has now appeared a tendency toward the idea of exclusively external causation. To what extent this view is tenable a consideration of some of the basic principles of the affection will possibly help us to decide.

No discussion of eczema can be intelligently pursued until there is a common understanding as to the distinction between eczema and dermatitis.

Morris² says: "Eczema is a catarrhal inflammation of the skin originating without visible external irritation. This definition excludes all forms of inflammation caused by chemical or mechanical irritants. The artificial dermatitis so produced is identical anatomically with the eczematous process and causes indistinguishable lesions, but is not eczema. It is evident therefore that there is something more in eczema than in inflammation of the skin due to a local and transient cause—a quantity beyond this—a pathologic x which may be some invisible source of irritation, some constitutional peculiarity or both of these factors."

* Read before the Society of the San Francisco Polyclinic, March 4, 1914.

This reasoning seems to Pusey³ "a *reductio ad absurdum*, because it amounts to saying that two things which are the same are different because they are produced differently."

In reality the differentiation of eczema and dermatitis is only a convention of nomenclature whereby those catarrhal skin inflammations of known external cause are labeled dermatitis and those of unknown cause are branded eczema. No one can refute, however, the observations of Morris as to the unknown quantity in eczema. But the same observations apply equally in many cases of dermatitis of known external cause. Why, for example, do certain individuals react with acute inflammations to contact with poison oak, poison ivy or certain proprietary hair dyes while others remain unaffected? Assuredly there is some pathologic x, whether we term it susceptibility or immunity or what not. Now if we assume that certain eczemas are of definite and known external origin, and if we admit, as I think we must, that the lesions of dermatitis from poison ivy, for example, are anatomically identical with those of acute eczema, what justification is there for calling them by different names? Absolutely none. The only logical distinction is to limit the term dermatitis to those reactions due to irritants which act upon all alike and which subside spontaneously when the offending material is removed.

Some chemical substances—sulphuric acid, for example—will cause a definite reaction in any skin. Other chemicals—iodoform, for example—will cause a reaction only in certain skins. The essential problem in the etiology of eczema, I take it, is the determination of the reason for this—a reason which is not found in any mere generalities.

Granting that the exciting cause of eczema is sometimes or even always from without, we must search for a predisposing cause either within the body or in the intimate metabolism of the skin itself. The proponents of the theory that eczema is of exclusively external origin say that here is an eczematous reaction, the subject has been irritated with some definite chemical or other noxious substance and hence the reaction comes from without. What they fail to explain is why the particular subject reacts while others who are subjected to the same external influences fail to react.

Certain external agents are well known to be provocative of eczematous reactions, e. g., atmospheric conditions, winds, inclemencies of weather, irritating excretions, chemicals, plants, dyestuffs, parasites, various substances used in the arts, sugar, cement, etc., but, above all, traumatism. Most of these are easily traceable. Occasionally we meet an eczematous reaction of the face and neck, perhaps of even more extensive distribution, due to the use of some proprietary hair dye. Persistent and recurrent patches on the faces of middle aged females should arouse our suspicion of such application. The information is almost never volunteered and quite frequently it is denied.

Aside from purely outward causes the inherent quality of the skin itself must be reckoned with. In both infancy and old age the skin is particularly

vulnerable and the ichthyotic skin shows a marked susceptibility to eczema. By the term ichthyotic skin, not only marked ichthyosis is meant but the milder forms of so-called xerodermatous skins which share in the eczematous tendency.

A great variety of internal predisposing causes have seemed by many observers to be operative. They may be grouped under such general headings as gastro-intestinal, circulatory, nervous and metabolic disturbances. The well known flushing of the face after a stimulating meal amounts practically to an incipient eczema. Frequently an eczema seems to stand in relation with some visceral disturbance. Darier⁴ says in this respect: "Often a rebellious and progressive eczema is seen to precede by several months or years and announce, as it were, the manifestation of a latent visceral cancer." Hyperacidity, indicanuria, thyroid changes, gout, compression at various parts of the anatomy by pressure of tumors from within or constrictions of clothing from without, all are mentioned as contributing factors in the diverse etiology of this affection. A routine examination of the blood and urine of all eczematous subjects will very seldom shed any light on the cause. Probably many of the above cited factors are themselves due to what it seems possible is most often the real or ultimate cause of eczema, namely, some disturbance of the nervous system. Just what the nature of the nerve participation may be it is difficult if not impossible to say. According to Darier, "It is not a matter of central or peripheral lesions which predisposes to eczema, but rather neurasthenia, overwork, emotion, moral shock, sorrow, etc."

Broeq⁵ believes that eczema is developed frequently upon neurotic soil and that the vasomotor element plays in it one of the most important parts.

Our conception of eczema is simplified if we regard it not as a disease, but as a cutaneous reaction, a reaction which results from external or internal irritation in certain subjects. The entire matter will be further simplified if we do not think of eczema as divided into as many forms as there are lesions encountered, each of which has another adjective added by reason of special modifications according to the region involved.

There are three essential or primary lesions to be considered:

1. Erythema.
2. Vesicles.
3. Papulo-vesicles.

These correspond to the three main types of the disease, viz.: erythematous, vesicular and papulo-vesicular eczema. To these must be added another form because its primitive element is slightly variable and because it differs somewhat in configuration from the other forms. This fourth variety is known as nummular or trichophytoid eczema or eczema *en plaque*.

Erythematous, vesicular and papulo-vesicular eczemas are sufficiently explained by their names. It is well known that after erythema there is scale formation proportionate to the intensity of the erythema. Vesication may develop into pustules and later crusts; in declining it may present scales.

These are consecutive lesions and give rise to such terms as *eczema squamosum*, *eczema crustosum*, etc.

All of these three primary forms present certain general characteristics. First of all is the tendency toward diversity of appearance. The erythematous eczema to-day is a squamous eczema to-morrow. What was yesterday a vesicular eczema is to-day a pustular eczema and soon again its identity will be lost in a patch of crusts.

There is always to be noted a certain degree of infiltration of the skin together with redness and the subjective sensation of itching. The flexor surfaces of limbs are points of preference. Except in the erythematous form, some degree of moisture is always in evidence at some stage. If to these we add a general tendency toward the formation of fissures and a vague, ill-defined outline, we shall have a fairly comprehensive picture of the eczematous process.

It is necessary to speak in rather more detail of the so-called nummular eczema. Objectively it stands alone among eczemas because of its configuration. Instead of an eczematous patch which fades insensibly away into the surrounding healthy skin, we find here clean cut round or oval patches from one to three inches in diameter, usually about the size of a silver dollar, and beginning as a rule with papulo-vesicles, though sometimes as simple vesicles. Occasionally these lesions clear up somewhat in the center, when they present more than ever the aspect which leads to their description as trichophytoid.

The interesting question arises as to whether there is anything about the form assumed by an eczema which will indicate the etiology in a given case. We hear such terms as gouty eczema, neurotic eczema, metabolic forms, etc. Are there special types of eruption which will permit us to say that a given patch is due to cold, to traumatism, or to gastro-intestinal, metabolic, visceral or nerve disorders? This question must be answered in the negative, because the etiologic elements are both external and internal influences. There may be certain types, however, which indicate an *etiologic dominance*. Papulo-vesicular forms in general seem most often related to internal disorders. This is particularly true of the nummular form in which the papulo-vesicle is usually the essential eruptive element, for in this form perhaps more than in any other no cure can be effected until some internal condition, as for example a chronically inflamed appendix, is removed or some pelvic disturbance relieved.

Various attempts have been made to identify certain types of eczema as neurotic. The point which suggests the participation of the nervous system is the tendency to lichenification, for an eczematous lesion may become lichenified as may any itching spot.

Occasionally an eczema which has primarily been of the characteristic vague outline develops a sharp line of demarcation from the surrounding skin. In such cases the suspicion at once arises of a secondary microbial invasion.

Within recent years what was for a long time known as eczema of the fingers and toes, a reac-

tion presenting a definite border, has been shown to be due to a parasite, the epidermophyton. This condition yields readily to a mild chrysarobin ointment, and of course is now not included among the eczemas.

While the present tendency in this country is perhaps to revert to the old Vienna doctrine of the exclusively external origin of eczema, it is well to consider some of the opinions of present day French writers by whom some relics of the diathetic school are not entirely abandoned.

Concerning the interesting theory of "interferences and intercurrences," Besnier⁶ maintains that quite apart from the improvements and remissions common to the typical process of eczema, unexpected and often rapid arrests may supervene under the influence of diverse pathologic circumstances. In general, any grave intercurrent affection, as pneumonia, typhoid, etc., temporarily inhibits eczematous proliferation, although after the subsidence of this intercurrent affection the eczema blossoms forth anew. Furthermore, according to the same authority, clinical observation definitely shows that there may be established between the eczematous paroxysm and various organic or functional troubles, alterations and substitutions, or that the eczematous flux may be emunctorial. The development of one morbid process, such as eczema, following the suspension of another, typhoid for example, depends upon the presence of an anatomo-topographic relation. While of course these alterations and substitutions are by no means always present, there are certain cases in which a balance becomes established which it is impossible to overlook.

Various observations of Broeq⁷ regarding the advisability of treating all eczematous eruptions suggest a similar belief on his part. He says: "If it is a question of an eczema recently developed in a healthy subject, there is no doubt. Treat it as soon as possible. If it is a question of a recent eczema developed in a subject of some other disease, such as recurrent bronchitis, an attack of asthma or gout, such affections as the cutaneous manifestations modify beneficially, it will be temporarily advantageous not to suppress this derivation or, watching the process, to prevent by appropriate local means its great extension. Above all it is necessary to treat the general state, then little by little, with caution, one may first attempt to ameliorate and then cure the dermatosis.

"If it is a question of an eczema existing for a long time in a subject presenting no important visceral complications which alternate with acute attacks of the skin, it is necessary to make it disappear. If, on the contrary, it concerns aged people, rheumatic or gouty subjects, chronic asthmatic or bronchial individuals, those with visceral manifestations, as Bright's disease, etc., one should intervene with the greatest circumspection. In treating the eczema too energetically one may determine the appearance of pulmonary or even more grave cerebral congestions."

All this may seem reactionary and a reversion to the household therapeutics of our grandmothers

who hesitated to heal too rapidly certain eruptions for fear of "driving them in."

Two relatively recent American articles present an opposite view. Hartzell⁸ says: "There is a widely prevalent and deeply rooted notion that excrementitious matters circulating in the blood, especially those which pass out of the body by way of the kidneys, acting as irritants to the skin, are frequent causes of eczema. If this notion were correct, eczema should be a frequent complication of such diseases as chronic interstitial nephritis, in which the output of waste through the kidneys is frequently reduced to its lowest expression and the blood in consequence is charged with an enormous amount of toxic substances which are often excreted vicariously through the skin to a greater or less extent. Under such circumstances the conditions should be especially favorable to the production of cutaneous inflammation; but eczema instead of being a frequent complication of chronic nephritis, is quite infrequently associated with this affection."

Gilchrist,⁹ in an attempt to ascertain the relationship of the various types of skin lesions to the tubular functional activity of the kidneys, injected a series of forty cases with phenolsulphonephthalein and concluded from the results that the skin cannot act vicariously with the kidneys, either in health or disease.

These two American observations refer only to the relationship between the kidneys and the skin, while the French writers refer to visceral relationships in general.

I can recall one case in my own practice in which the patient, a man about sixty years of age who suffered from a moist eczema about the neck, promptly died from an apoplectic seizure upon the cure of the eczema, although the treatment of the latter comprehended the very procedures which were indicated for a heightened blood pressure.

The relationship between dermatoses in general and the digestion is a matter of such general acceptance that its importance, if not overestimated, is frequently taken for granted even where it obviously plays no part. One does not hear of a balance established between the skin and the intestinal mucosa whereby the healing of an oozing cutaneous surface will be reflected as a diarrhea. Nevertheless we do see every day eczemas which are unfavorably affected by improper feeding.

Let us consider the case of an infant under treatment for extensive weeping eczema. Under a carefully regulated diet and the local application of mild astringents, a steady progress toward improvement is noted. Suddenly a recrudescence takes place with all the original symptoms in aggravated form. In seeking a possible cause we learn that some misguided relative has been regaling the child with pickles and peanuts. Are we not justified in saying the relapse was dietetic? Are we not further justified in assuming that the oozing surface acted in this child as a safety valve and that in some other child the same original impulse might have resulted in reflex convulsions?

To recapitulate briefly the etiology of eczema, the words of Widal may be quoted: "There is

no eczema—there are only the eczematous." This is in line with the view that eczema is a reaction of the skin largely brought about through external exciting causes in individuals who are particularly susceptible by reason of some internal, predisposing cause. Both external and internal causes cover a wide range, but I believe the most efficient external cause to be traumatism—the multitude of daily contacts—and the most potent internal cause a certain unbalance of the nervous system, whether we call it neurasthenia, vasomotor disturbance, or simple nervousness.

The treatment of eczema might be made the topic for a long discourse, but I shall present only an outline because the details vary with every case.

Treatment is of course both constitutional and local. First of all comes an inquiry into the patient's general health. If there be nothing to direct one's attention to any special organ, which is very often the case, the various etiologic possibilities are to be considered one by one. Among internal causes which have seemed to me operative in several cases were fibroids. In two cases severe papulo-vesicular eczemas were associated with prostatic trouble, one case being a simple hypertrophy, the other showing malignancy. The former was relieved of his eczema by operation, the other died refusing operation. A woman with acute vesicular eczema was relieved by treatment, but it constantly recurred until a system of very tight lacing was reformed when the cure was spontaneous. In a majority of cases some nerve element has been noted, either vasomotor disturbances or a general nerve irritability. Occasionally an eczema will be the apparent cause of a neurasthenic train of symptoms. One patient with an intractable eczema would burst into tears if he saw anyone looking at him in a street-car. His nervous symptoms all vanished with the relief that a soothing application afforded him.

As a rule two paramount indications are to be met, viz.: a rigid non-stimulating diet, and rest. Dietetic measures in the absence of any contraindication provide exclusion of tea, coffee, alcohol, highly seasoned and nitrogenous foods. A sample diet calculated for the average individual who has usually been eating too much, is an exclusive diet of milk, boiled rice and Vichy water for the first week, with several doses of a saline such as Carlsbad salts. At the end of a week, cooked fruits and soft vegetables may be added. In another week chicken, eggs or fish in moderation. Most patients adapt themselves satisfactorily to this diet and experience a definite sense of general betterment aside from the relief of their eczemas.

The indication for rest is double. If the eczema is at all active and acute, anything which causes a dilatation of the superficial capillaries is detrimental. If there is any degree of nerve exhaustion the more nearly the rest is complete the better the result.

The local treatment of eczema is somewhat epitomized in the phrase—if acute, soothe; if chronic, stimulate.

The important point in local treatment is a perception of the intervening shades of difference

between the actively developing, acute, weeping eczema, and the chronic, indolent, greatly thickened, scaly eczema.

For the frankly acute, moist eczemas I have found nothing comparable to the treatment with wet dressings. We are told that water is poison to eczema. Such is not the fact. The great damage attributed to water is due not to the water *per se*, but to the sudden change from wet to dry and *vice versa*. If wet dressings are elected, they must be kept consistently and continuously wet until the indication is to change. Let us take a typical case of moist infantile eczema involving chiefly the head and face. As the case first comes to us there are usually areas of raw, oozing surface alternating with thick, adherent crusts. A compress of boric acid solution, or one per cent. resorcin solution, even normal salt solution will effect a magic transformation in from twenty-four to forty-eight hours. Two masks are made of several thicknesses of fine linen, one being carefully washed while the other is in use. Renewing the compresses every three hours, a rapid improvement is noted. Within forty-eight hours the crusts have separated, the oozing surface has become dry, shining and ready for a healthy process of epidermization. In fact, if the resorcin solution has been used the process is already well under way. At this stage the compresses may be discontinued and a soothing ointment of boric acid and ichthyl (3 per cent. of each) may be substituted. In other cases less acute and for infants for whom such exacting ministrations are not practicable, frequent applications of a 3 per cent. aqueous solution of ichthyl followed by applications of calamine lotion are excellent.

In subacute cases, either in children or adults, 2 per cent. salicylic acid in Lassar's paste is a classic which deserves its high repute. It should be the remedy of choice when in doubt, for nearly always it is of service and it never does harm. As the case gets further away from the acute and nearer to the chronic type, stimulating applications are in order with keratolytic agents in strength according to the amount of thickening. The type of prescription for such a case is a combination of salicylic acid and a tar preparation, as oil of cade or oil of rusci. If only slightly indolent, salicylic acid 3 per cent. and tar 5 per cent.; if more sluggish, salicylic acid 5 per cent. and tar 10 per cent. may be tried. In the very indolent cases sulphur, green soap, pyrogallic acid, white precipitate are often of service.

In treating any eczematous surface a good rule is first to have a thorough cleaning of the surface to remove all crusts and debris. Preliminary applications of olive oil, or a starch poultice will serve this purpose. Nothing is more futile than to pile ointments upon crusts.

This is a mere outline of treatment. Often a soothing or astringent application effects a cure. Again a remedy designed to allay the itching causes a cure because the patient ceases scratching. But many cases resist. Our endeavor must be to discover the cause or causes. Often both external and internal factors are at work, both of which are hidden and unsuspected. It is the province

of the dermatologist to find these causes, but to do so he often requires much aid of the internist and the laboratorian.

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A CASE OF EXTRAPERITONEAL, INTRALIGAMENTOUS DERMOID CYST AND PREGNANCY.

By HENRY J. KREUTZMANN, M. D., San Francisco Polyclinic.

In the course of time I have operated a few dermoid cysts of the ovary, also some extraperitoneal, intraligamentous cysts not of ovarian origin. Likewise I have done ovariectomy in a number of cases during pregnancy; but I have never seen an extraperitoneal, intraligamentous dermoid, not during nor outside the gravid state, until quite recently.

Mrs. Gr., 28 years old; one child 5 years ago, easy labor; always been in good health; more children were much desired, but did not appear. Menses always regular, without any difficulty.

Last menses September 8, 1913. Towards the end of December, 1913, the lady called on me, not because she had anything to complain about, but because she wished to engage my services for her expected confinement.

When I made the usual examination I had difficulty in locating the uterus well, the gravida would not relax and her abdominal wall was thick and fat. I found the uterus turned to the right side and somewhat backwards; on the left side of the uterus a mass of indefinite character was located. A further examination about a week later failed for the same reasons to clear up conditions sufficiently; therefore examination under an anesthetic was proposed and shortly after done. The uterus was now distinctly mapped out, also the "mass" on the left side was found to reach way down into the cul-de-sac, located close to the uterus, immovable, semisolid, of the size of a small man's fist.

A diagnosis of ovarian cyst and pregnancy of four months was made.

January 14th operation was performed. Median incision through the very fat abdominal wall; the incision exposed not the uterus, but just the left side of it; this organ was placed entirely to the right of the middle and backwards. The left round ligament, much thickened, ran diagonally through the field of operation; along the side of the uterine cervix a few distended veins, one as broad as a finger, were noticed directly under the peritoneum. Nothing of a tumor was to be seen. Digital exploration found left ovary and tube slightly adherent to the side of the uterus; they could easily be detached and brought to view; they were perfectly normal, the ovary was the seat of a fresh corpus luteum.

Palpation revealed the tumor seated in the broad ligament, outside the peritoneal cavity proper.

The peritoneum over the ligament (and tumor) was incised transversely in front of the ligamentum rotundum. With great care and some difficulty the tumor was dug out, mostly bluntly; the inguinal vessels were partly exposed. Great care was employed in the enucleation of the tumor out of its bed, in order not to tear the thin cyst wall. From former experiences I know that it is impossible to remove these thin-walled cysts when

once they are broken; furthermore, we do not know what is in them. Some difficulty was experienced, since owing to the pregnant condition every little vessel bled freely. While working in the cavity with the finger, the incision of the peritoneum tore; the tear extended towards that big before-mentioned vein, injuring it and producing a very lively hemorrhage.

The large cavity in the broad ligament was stitched together and the incision of the peritoneum closed.

The incision through the parietes was closed with particular care, owing to the amount of fat on one side and to the expected strain during pregnancy and delivery on the other side.

Uninterrupted recovery took place; sufficient time (six weeks at time of writing, end of February) has now elapsed to feel assured that no ill effect on the gravid uterus has resulted from the operative interference.

During operation the tumor felt soft, semisolid; when it was taken up for inspection after the operation was finished, it was found to be hard; when cut open the reason for this hardness was revealed. The contents were tallow, that had congealed; besides a large bundle of auburn hair was found in the cyst.

Of interest is the etiology of these rare extra-peritoneal dermoid cysts; opinions differ. Some authors claim that they start from accessory ovaries, others derive them from germs disseminated during the descensus of the ovary; the most probable explanation is that they are parasitic formations, so-called "fetal inclusions."

ARTIFICIAL CULTIVATION OF THE GONOCOCCUS.

By ERNST ALBRECHT VICTORS, M. D.,
San Francisco Polyclinic.

Experience in attempting the cultivation and isolation of the gonococcus for bacterial vaccines and for complement fixation antigen has long convinced me that this is attended with considerably more difficulty and disappointment than is usually conceded. Less difficulty is encountered with subcultures when primary inoculations have been successful, providing that suitable environment and pabulum have been maintained.

Identification demands the fulfilment of the following biologic requirements: (a) Small "dew drop" like colonies—not visible before 48 hours. Older colonies become whitish and tenacious; especially in subcultures. (b) Organisms from direct inoculation colonies must maintain their Gram negative characteristic. Subcultures of certain strains become indefinite in their tintorial behavior. (c) Subcultures upon ordinary agar must be negative. This is true of most strains even after several laboratory generations. (d) Subcutaneous injections are not toxic for rabbits except in massive doses.

Media. With the view of ascertaining which media were most favorable for artificial growth, a number of infected cases and of different stages were used from which various types of media were inoculated. In this series the media were freshly prepared and inoculations were made directly. Inoculated tubes and Petri dishes were incubated without delay and every effort was made to avoid contamination in taking specimens.

Impressed by the fact that the two mucous membranes most prone to gonococcal invasion—that of the urethra and conjunctive, were frequently bathed by a fluid whose chloride content exceeded that of the blood serum or other secretions, a number of media were prepared wherein this factor was proportionately increased. No definite advantage was observed.

Of the commonly used media, such as human serum and human serum agar, ascites and hydrocele agar, pig and horse serum agar, hardly one in twenty inoculations proved successful. Success, too, seemed dependent upon the quantity of pus conveyed with the inoculation. This pus is the probable pabulum and the colonies rapidly die. On the other hand, these media are suitable for subcultures of most strains provided that the reaction be but weakly alkaline or preferably slightly acid and that transplantation be frequently performed.

Abel's human or rabbit blood smeared agar gives better results provided that the bactericidal power of the serum has been destroyed by inactivation at 56° C.

Thalmann's media was used blood streaked (inactivated) or admixed with human blood serum or hydrocele fluid. In all instances precaution was taken to maintain reaction as plus 0.6 to phenophthalein. This media gave the greatest number of successful inoculations, but even so, in about 45% of the inoculations the organism did not develop.

The media of Saboraud and Noiré, wherein the protein is casein to which is added peptone, glucose and urea and solidified with agar, although not giving the number of successful inoculations as did Thalmann's, had nevertheless the distinction in some instances of yielding colonies when the latter failed.

UPON THE EARLY DIAGNOSIS OF RENAL TUBERCULOSIS BY THE GENERAL PRACTITIONER.

By MARTIN KROTONSYNER, M. D., San Francisco Polyclinic.

We are accustomed, of late, to point with justifiable pride to the marvelous progress of the science and art of medicine, by which the diagnosis as well as the treatment of all ailments, which human flesh is heir to, has been revolutionized. At the bedside, as well as in the laboratory, new methods of examination by means of complicated and delicate instruments and apparatus are in daily use at the hands of specialists, experienced in the interpretation of the results of their investigations. Thus at the great medical centers and particularly at the large modern hospitals a correct diagnosis of the more serious pathological conditions is now only considered feasible through so-called team-work, done in several special departments and aided by various laboratory tests. Gratifying as the results are, under this system, as regards the welfare of our patients, as proven by the marked and steadily growing decrease of the mortality rate, matters are, nevertheless, not quite as favorable for the general practitioner who has been brought up under this system at the teaching hospital of his college and who, when left to his

own resources, has to make his diagnosis and to devise the proper and effective treatment by a less circuitous, complicated and costly route. For the most important aid towards accomplishing this end in view, viz., the art of observation, or the faculty to correctly interpret symptoms and to group them to a diagnosis, has not been sufficiently developed by the above described system. Thus it occurs that patients daily enter our hospitals with long-standing lesions, the earlier recognition of which would have spared them long suffering and a serious operation, often resulting in the loss of an important organ.

No special field of medicine has of late made more rapid strides as regards exactness of diagnosis and efficacy of treatment than urology. It is generally conceded that these excellent results are obtained through the skillful application of instruments of precision, and the opinion prevails among the rank and file of the profession that a urological lesion cannot be diagnosed without instrumentation. The first thought, therefore, when confronted with the solution of a urological problem, is of the cystoscope, which in the hands of the untrained physician is a useless and often dangerous toy. However, the correct recognition of many pathological conditions of the genito-urinary tract can often be accomplished, at the hands of the general practitioner, without special training, through much simpler methods, which at the same time are connected with less discomfort and risk to the patient.

It will be conceded to be an irrefutable fact, however obvious the statement may appear at first glance, that in order to diagnose a certain lesion one has to bear in mind the probability of its existence. Considering in this connection, one of the most frequent and important affections of the genito-urinary tract, viz., tuberculosis, the statement is ventured, that the main reason for the failure of its early recognition by the general practitioner lies in the fact that he is not on the outlook for it. The opinion held in many quarters, that urinary tuberculosis is a rare occurrence, is erroneous, as evidenced by Israel's¹ statement that more than 13 per cent. of all his kidney operations were done for tuberculosis. The same author somewhat caustically observes that, to his notion, the disease is a much more frequent occurrence than its early recognition.

One of the reasons that the disease is overlooked a long time or not recognized in its beginning is, that tuberculosis of an important organ, in the mind of the general practitioner, is always coincident with the dismal picture presented by pulmonary phthisis. The general condition and appearance, though, of patients suffering from advanced renal tuberculosis is quite often excellent. My last patient, operated for this disease, was a stout, fleshy matron of 40, who in spite of her urinary disturbances had steadily gained in weight. Under similar conditions every experienced urologist has removed tubercular kidneys from well-nourished and robust youths of both sexes. The main and most important reason, though, for the failure of an early diagnosis lies in the fact that the general practitioner cannot become divorced from the idea that, since all symptoms of renal

tuberculosis point to the bladder, he is dealing with a chronic and rebellious cystitis. It is marvelous how long such a protracted "catarrh of the bladder" will remain under medical care and treatment with the time-honored antiseptics and local irrigations until, as a rule, the patient is the first to inquire into the reason why the condition is getting worse and why it remains refractory to such continuous and energetic ministrations. Every practitioner ought to know at present that a pollakiuria, which has set in insidiously without a palpable cause, like gonorrhea, traumatism, instrumental infection, etc., which is running along with or without dysuria, which is characterized by cloudy, microscopically purulent urine, and which has become chronic, should be considered highly suspicious of renal tuberculosis. This suspicion should become intensified by observing the ineffectual or rather harmful effect of local treatment and a gradual decrease of the bladder capacity. At this point, repeated careful urinalyses will aid materially in the diagnosis. The urine, which may only be slightly cloudy, will always show besides many leukocytes a few red blood cells. Characteristic are also a slightly red discoloration of the urine (from admixture with blood) or a definite terminal hematuria. In the presence of these symptoms it is the duty of every modern practitioner of medicine to examine a catheterized specimen of the patient's urine for tubercle-bacilli, and if they, after repeated search, should not have been found, to verify or refute the suspected diagnosis by the guinea-pig test. In case this be positive, the modern practitioner, knowing tuberculosis of the urinary tract, almost without exception, to begin in one kidney and the patient's life to depend upon early treatment, will be able to advise his patient as regards ways and means for the exact localization and removal of the diseased focus.

In many instances satisfactory conclusions may be made even as regards localization of the focus. Although it is true that the majority of unilateral kidney lesions present obscure or only vague general symptoms, although, besides that, urinalysis as a rule does not add conclusive evidence pointing to the existence of a kidney affection, the practitioner may, nevertheless, by a painstaking investigation of the history and symptomatology of a given case, be able to gather sufficient material for a focal diagnosis. Aside from distinct attacks of kidney colic or pains located at one of the renal regions, which will obviously point to the seat of the focus, the patient will, upon close questioning, admit of sensations of pain, significant of a renal focus, which, at the time, were not considered of any moment. These sensations may be located at either of the lateral abdominal regions, near the crest of the ileum, the hip, the femur or the os sacrum. Occasionally a sensation of chilliness in one lumbar region is complained of. The judicious interpretation of the evidence obtained in this way will, quite often, permit of fair conclusions as regards the location of the disease, which Israel² was able to determine and to prove to be correct afterwards at the operating table in 70 per cent. of his cases. In this connection, the same excellent observer calls

attention to the frequent occurrence of distinctly unilateral sensations of pain in one-half of the bladder, or urethra, or vagina, or in one labium, which are either connected with or noticeable independent from micturition. Another symptom, not occurring so frequently, but quite characteristic when present, is presented by sudden and intense paroxysms of bladder tenesmus with evacuation of a few drops of a clear, watery urine. These attacks, which as a rule are connected with chills and consequent sweating, point, in Israel's opinion, with absolute certainty to tubercular disease of one kidney.

The evidence obtained through palpation of the suspected kidney, and particularly a palpable enlargement of the kidney, should be accepted with caution, as a mere increase of the organ in size may be due to various other causes (nephrolithiasis, neoplasm, etc.). In some instances, though, the diagnosis is aided by the presence of certain pressure points in the course of the ureter. Painful sensations upon pressure, particularly at three points, viz.: at the juncture of the ureter with the renal pelvis, at its entrance into the bony pelvis, and at its entrance into the bladder, are held by Israel as characteristic of the disease. I have been able to convince myself in two cases of the correctness of Israel's observation, at least as regards the third pressure point, which can easily be reached from the rectum or the vagina, and which, especially in women, is rarely missing.

On the basis of the evidence brought forward above, the conclusion appears to be justified, that every modern physician, without special training and instruments, should be able, at present, to recognize the existence of urinary tuberculosis. I will admit that in some instances the diagnosis can only be made with a certain amount of probability. In the majority of cases, though, the practitioner, provided that he applies careful and pains-taking study to the analysis of his case, will be able to gather sufficient data for a focal diagnosis.

The early diagnosis of urinary tuberculosis is most valuable to the patient. It is well known that the tubercular process which has once invaded a kidney will, unless eliminated, rapidly lead to the destruction of the organ, followed by infection of the urinary tract, and will inevitably prove fatal to the patient. Through the early recognition of the disease, the obvious advantages of the early removal of the primary focus and the avoidance of the greatest danger to the patient, viz.: secondary tubercular infection of the other kidney are obtained. The consensus of opinions of leading renal surgeons of the world still inclines towards nephrectomy as the only procedure by which, in by far the greatest majority of cases, disappearance of all secondary symptoms and constitutional improvement, equal to a cure, can be obtained. Gratifying as these results are, the loss of a vital organ is, nevertheless, too costly a price paid for them. In an early diagnosis, therefore, in the recognition of the disease, while still limited to its original focus or in one kidney, lies our only hope for a permanent cure by less radical and mutilating measures.

(1) Fol: urolog. I, p. 11.

(2) I. c. p. 18.

IMPORTANT INFORMATION!

Action of the State Society on Industrial Accident Work

In these four pages, so numbered that they may be torn out of the JOURNAL, if so desired, without mutilating the remaining reading pages, will be found presented the plan recommended by the Council of the State Society and adopted by the House of Delegates at the Santa Barbara meeting last month, together with the fee schedule which was also presented as a part of the report and adopted.

The full proceedings, minutes, reports, etc., will appear in the June issue.

REPORT OF THE REFERENCE COMMITTEE ON NEW BUSINESS.

22. We recommend for adoption and ratification by the House of Delegates of the recommendations made by the Council relative to accident insurance, and the relation of our members and Society and county units thereto, as given on pages 6 to 7 inclusive, of attached report (beginning on page 6 with the line "In the following statement," etc., and ending on page 7 with the 21st line reading "subject to discipline," etc.)

"A. Note. In the following statement the Industrial Commission is considered as one of the companies, for it is doing the same sort of work and on the same basis and is agreeable to the general conditions as outlined.

"B. Contracts: No contracts at flat, fixed fees for all work are to be made and those now existing are to terminate at the earliest possible date.

"C. Fee Schedule: The fee schedule which has been prepared as heretofore indicated and is herewith presented to you, is recommended for the approval of the Medical Society of the State of California and of its various county units, as a schedule of the minimum fees to be charged for the services indicated in the schedule in the treatment of persons who may be injured as specified in the law.

Additional compensation will be allowed in unusual cases for unusual services on proper representation.

"D. *Choice of Physician:* The employer (or the company, if the employer is insured) is to have the right to a free choice of physician and such selections are to be made from lists of names furnished by the insurance companies, these lists of names to be the lists of members of the several county medical societies which collectively compose the Medical Society of the State of California, but no member may be compelled to do the work if he does not wish to. Provided, that in counties where there is no county medical society, or in special cases where the employer may desire to secure the services of some physician who is not a member of his county medical society, he reserves the right to do so; also provided, that in the larger centers the societies are to prepare lists of names of members who are willing to do the work and to arrange so that the services of some of them may be secured at any time, by means of a telephone exchange or some other plan by which their whereabouts may at any time be ascertained; and also provided that the companies are to be permitted to advise their policy holders that certain physicians have, in the past, done work for them satisfactorily. It is understood that an insurance company may have a regularly appointed medical referee in any given locality.

E. Adjustment of Fees: In case a bill rendered by a member is regarded as excessive by the employer (or company) it shall be submitted to the county medical society for scrutiny and adjustment, and if there be still failure to agree, it may be submitted to the Council of the State Society or to the Industrial Commission.

F. County Units and Professional Conduct. In order to carry out the provisions of this plan, it will be necessary for each county unit to approve the schedule—in so far as it applies to the work indicated and to persons whose income does not exceed the maximum indicated in the law. Charges in excess of the proper ones, or bills unduly padded by fictitious or unnecessary visits, shall be deemed unprofessional conduct and subject to discipline by suspension or expulsion."

(Adopted.)

Respectfully submitted,

G. A. HARE, Fresno;

RENE BINE, San Francisco;

GEORGE H. KRESS, Chairman, Los Angeles.

(Adopted as a whole.)

FEE SCHEDULE.

These fees represent a minimum. Fees higher than Schedule will be approved when warranted by extraordinary difficulties encountered by the surgeon.

Unusual cases and procedures not specified are entitled to same fee as specified procedures of approximately equal magnitude.

Note.

Bills must be itemized, showing date of each visit, dressing or operation, and charge for same.

The.....(Name of Company).....is fully aware of the difficulties and inequalities of an inelastic Fee Schedule for surgical service. The Schedule here presented is designed for use in connection with medical services rendered an individual with an average earning capacity of \$1,000 per annum. To this class belongs the bulk of citizens which the Boynton Act is intended to protect and relieve.

First visit including report and first examination, in injury not otherwise specified	\$2.00
Surgical dressings (materials).....	Specify Costs
Mileage beyond city limits.....	50c day, 75c night, 1 way per mile.
Assisting at Operation.....	Major \$10.00 Minor 5.00
Administering general anesthetic....	5.00
Testimony as to fact of injury.....	10.00

		Subsequent Visits Hospital or Fractures. Operation. Home. Office.		
Reduction and First Dressings:				
Nasal Bones.....	\$10.00	\$1.50	\$1.00	
Hand or Foot.....	5.00	1.50	1.00	
Forearm—Leg 1 bone....	10.00	1.50	1.00	
2 bones...	25.00	1.50	1.00	
Femur or Humerus.....	25.00	1.50	1.00	
Clavicle or Scapula.....	15.00	1.50	1.00	
Patella	15.00	1.50	1.00	
Mandible or Maxilla.....	10.00	1.50	1.00	
Pelvis	10.00	1.50	1.00	
Ribs	5.00	1.50	1.00	
(For compound fractures or fractures involving joints)	Add fifty per cent. to operation.			
Dislocations.				
Easy reductions without anesthesia or assistants.....	5.00	1.50	1.00	
Hip	10.00			
Sprains.				
Large Joints, First Treatment	5.00	1.50	1.00	
Small Joints.....	2.00	1.50	1.00	
Amputations.				
Finger or Toe.....	5.00	1.50	1.00	
Two or more.....	10.00	1.50	1.00	
Hand, Wrist, Forearm or Arm	25.00	1.50	1.00	
Shoulder disarticulation...	40.00	1.50	1.00	
Foot, Ankle or Leg.....	25.00	1.50	1.00	
Knee or Thigh.....	40.00	1.50	1.00	
Hip disarticulation.....	75.00	1.50	1.00	
Special Operations.				
Trephining or Resection of Skull.....	50.00	1.50	1.00	
Laminectomy	75.00	1.50	1.00	
Hernia, Radical operation.....	30.00	1.50	1.00	
Hernia—by Taxis—Reduction and applying truss.				
Paracentesis, Thoracis or Pericardii	5.00	1.50	1.00	
Tendoplasty	25.00	1.50	1.00	
Catheterization of Urethra	2.50			
Foreign Bodies.				
Removal from conjunctiva (one or more).....	2.00			
Removal from Cornea.....	3.00			
Enucleation of the Eye....	30.00	1.50	1.00	
Minor Operations.				
Repair of small wounds (to 2½ inches).....	2.50	1.50	1.00	
Repair of large wounds (over 2½ inches).....	5.00	1.50	1.00	
Contusions, simple.....	2.00	1.50	1.00	
Contusions, extensive (several in different parts of body)	4.00	1.50	1.00	
Abrasions—Simple	2.00	1.50	1.00	
and Extensive, de-Burns pending upon severity of case.				
Abscess—incision	2.50	1.50	1.00	
Removal of small foreign bodies				

April 22, 1914.

DR. PHILIP MILLS JONES, SEC'Y,
MED. SOCIETY OF THE STATE OF CALIFORNIA,
SAN FRANCISCO, CALIF.

Dear Sir:

On my return from Santa Barbara, I found a letter from the Association of German Physicians, known as the Leipziger Verband.

The industrial insurance law in Germany has been codified and gone into effect on the 1st of January of this year; furthermore, the Imperial government found it necessary to intervene in the continual disturbance between the physicians and the industrial insurance companies, as a result of which an agreement was reached in Berlin on the 23d of December, 1913. This agreement up to date has not been carried out on account of the lack of co-operation of the insurance companies. Evidently they feel very bitter as the result of the antagonism which the medical profession has brought to bear for twenty years. We should consider ourselves very fortunate in bringing about the proper spirit of co-operation from the very beginning.

In reference to the proposition proposed by Dr. Graves, will you kindly call the attention of the Council to the fact that the statistics carried by the various industrial bodies in this country show that 60 per cent. of the accidents are of such a nature as to allow the injured to resume work within fourteen days? As our law does not allow indemnity until the end of two weeks, if the proposal of Dr. Graves was accepted, it would mean that 60 per cent. of the industrial accident work in this state would be uncompensated so far as the physicians are concerned.

Very truly yours,
DR. H. KUGELER.

AUDITORS' REPORT.

Medical Society of the State of California.
San Francisco, California.

Gentlemen:

We have audited the accounts of the Medical Society of the State of California for the year 1913, and we annex hereto Analysis of Cash Receipts and Cash Disbursements for the year, showing totals by months.

The balance with the Union Trust Company of San Francisco at December 31, 1913, amounting to \$290.10, has been verified.

The volume of the bank transactions for the year was as follows:

January 1st, 1913, balance.....	\$ 1,558.15
Deposited during 1913, as per statement of cash receipts.....	18,699.62
	<hr/>
	\$ 20,257.77

Less checks drawn during 1913 as per statement of cash disbursements	19,697.67
	<hr/>
	\$ 290.10

The statement of the Union Trust Company of San Francisco shows a balance, as at Decem-

ber 31, 1913, according to their books, of.. \$333.10
From this must be deducted check 1327,
unpaid at December 31, 1913..... 40.00

Leaving a balance of..... \$293.10

Of this amount, \$3.00 belongs to Dr. Jones, who made an over-deposit of \$3.00 in August last, and when this amount is withdrawn the balance, according to the bank statement, will agree with the balance shown on the books.

The financial position of the Society, as at December 31, 1913, was as follows:

Cash:	ASSETS.
Union Trust Company	\$290.10
On hand.....	200.00
	<hr/>
	\$490.10
Accounts receivable:	
Journal advertising.....	653.63
Register advertising.....	303.00
	<hr/>
	956.63
Stock of paper in printer's hands, as reported by Jas. H. Barry Co.....	494.50
Furniture and fixtures...	750.00
	<hr/>
	\$2,691.23
LIABILITIES.	
San Francisco County Medical Society, Loan.....	1,000.00
Interest	15.00
	<hr/>
	1,015.00
Attorney's fees; Medical Defense	2,297.80
Pacific Coast Paper Co.:	
Journal paper.....	378.29
Register paper.....	163.82
	<hr/>
	542.11
J. H. Barry, printing	
Register	675.00
Rynerson Distributing Co., L. A.....	20.95
T. J. Wash Co., San Francisco	21.72
	<hr/>
	4,572.58
Net Deficiency	\$1,881.35

We would point out that the payments for medical defense for 1913 (as per analysis of cash disbursements) amount to \$5,213.10, against \$3,242.87 for 1912, and also liability has already been incurred to the amount of \$2,297.80. This more than accounts for the deficiency shown.

We are, gentlemen,

Yours very truly,
(Signed) McLAREN, GOODE & CO.,
Certified Public Accountants.

RECEIPTS.	
Journal advertising	\$ 6,564.30
Journal subscriptions, non-members.....	107.20
County societies.....	9,584.00
Register advertising.....	808.50
Register sales.....	145.00
Rent received.....	180.00
Sundry receipts, including loan.....	1,310.62
	<hr/>
	\$18,699.62
DISBURSEMENTS.	
Journal expense	\$ 4,881.71
Register expense.....	334.64
General expense.....	1,382.95
Office expense.....	696.52
Salaries	7,295.00
Medical Defense.....	5,213.10
Office furniture and fixtures.....	163.75
	<hr/>
	\$19,967.67

Are You Interested?

**¶IF YOU ARE INTERESTED IN
THIS INSURANCE MATTER AND
HAVE SUGGESTIONS TO MAKE,
WRITE TO THE SECRETARY,
DR. JONES.**

**¶IF YOU ARE INTERESTED IN
YOUR JOURNAL, LOOK THROUGH
THE ADVERTISING PAGES AND
DEAL WITH YOUR ADVER-
TISERS.**

CONCERNING UNUNITED FRACTURES.*

By JAMES T. WATKINS, M. D., San Francisco
Polyclinic.

In this paper I take for my text the following sentence from Joseph Blodgood's review of surgery in *Progressive Medicine*:

"In my mind the most important contribution of Mr. Arbuthnot Lane is the remark that people should demand better results in recent fractures," and this comment by John B. Murphy: "Twenty-five or thirty years ago we practically never had a case of non-union of a fracture. To-day cases of non-union are so common that I do not know what we are going to do."

Rightly to understand the significance of a pathological condition presupposes a knowledge of the normal histology and normal physiology of the affected tissues. For after all, pathology is only physiology which has broken the law.

If we would know the nature and reason for delayed union or for mal-union of bone we must first arrive at some idea as to the way in which repair of bone takes place. Now it happens that this is in nowise histologically to be differentiated from the post-natal processes associated with the growth of bone; consequently it is appropriate at the outset of our study of ununited fractures to consider the subject of normal healing. With this in mind it ought to be no great matter to determine what changes in the general or local condition of our patient might be expected to upset the normal processes and bring to pass what we recognize as delayed union and ultimately pseudorthrosis.

Before we become specific let me say that not only does the bone forming power of individuals vary greatly, but also the bone forming power of the same individual varies not merely from year to year, but one might almost say from month to month.

In a general way it may be said the younger the individual the greater is the proliferating capacity of the bone cell and consequently the more remarkable is the bone producing power.

For example, I was lately called upon to set the fractured arm of a baby three days old. Union was firm without either shortening or deformity at the expiration of three weeks—and I don't know how much sooner, for I didn't look—with, however, immense callus production. Again, just three weeks after, I was asked to set the fractured thigh of a baby one day old. Here, too, at the end of barely three weeks the result was all that could be desired.

If all experimental investigators were in agreement as to the part played by each of its several components in the growth and repair of bone it ought to be a comparatively simple matter to set down what these several factors were, and then to determine which mechanical element of treatment might be misapplied with the result of suppressing one or other of these reparative features, and thus bringing about delayed or mal-union. Unfortu-

nately this cannot be done. For in the most essential features of osteo-genesis the conclusions arrived at are almost as various as the investigators themselves. I shall attempt, however, to set down first the features upon which all of them appear to be agreed and then to direct attention to the most significant matters of disagreement.

(1) In repair of injuries to the shafts of long bones there is a transition stage of cartilage.

An exception to this rule has been noted clinically by Mr. Lane and verified experimentally by Sir William Macewan: namely, when fresh fractures are at once and accurately coapted they heal by a sort of primary union. Of course, this constitutes a strong argument for the immediate operative treatment of fractures.

(2) Next, the bodies of the cartilage cells become absorbed, while their nuclei divide to become osteoblasts. These osteoblasts are capable of rapid proliferation. Their peculiar function is to produce a matrix which becomes calcified.

(3) It is generally agreed that freedom from undue pressure is essential to active osteoblastic proliferation. Bearing this fact in mind it becomes at once apparent that too tight splinting must prove a potent factor in bringing about delayed union, if not in actually preventing union. I shall dilate upon this circumstance later.

(4) Growth of bone occurs in the direction of the least resistance.

(5) The Periosteum. Here the experimental studies of independent investigators have led to the most diverse conclusions.

I was entirely satisfied with Macewan's deductions made from experiments covering a space of thirty years, and which seemed to show quite conclusively that the periosteum possessed no inherent osteogenetic property, but that it was essentially a limiting membrane, confining the osteoblasts within certain limits and in general determining the shape of the bone. And then I became interested in a brilliant paper which appeared in *Surgery, Gynaecology and Obstetrics* for August of this year, on the "Regeneration of Bone from Periosteum," by Dr. S. L. Haas, of San Francisco, published from the Pathological Laboratory of Stanford University Medical Department.

Dr. Haas made 62 experiments in ten groups, the elapsed time varying from 4 to 249 days, the whole period extending over an interval of two years. The paper must be read to be appreciated.

Dr. Haas' conclusions were: 1. That periosteum, especially in the presence of blood clot, has the power to regenerate bone. 2. That regeneration of bone is not dependent upon the presence of pre-existing bone. 3. That regeneration of bone was never found excepting when periosteum was present.

Of special interest to this discussion were experiments 4 and 5. In each case the experiment was repeated four times.

In the fourth group the rib was shelled out of the periosteum, except at the ends, and a flap of muscle interposed to keep rib and periosteum apart.

Observation. It was noted that regeneration of

* Read before the San Francisco County Medical Society, September 16, 1913.

bone occurred from the line of contact between bone and periosteum.

In the fifth group, bone and periosteum were again separated and a muscle flap again interposed. This time, however, the periosteal trough was filled with blood drawn from the superficial subcutaneous veins.

Observation. Within sixteen days every periosteal gutter was filled with new bone.

Deduction. There is a marked increase in bone production within the periosteum in the presence of blood clot.

Your attention will be recalled to this observation when we consider treatment.

In children the periosteum can be easily shelled off in a relatively thick layer. It is firmly adherent only at the extremities of the bones opposite the epiphyseal lines. Between it and the bone is the osteogenetic layer (Haas) and loose areolar tissue richly provided with thin walled blood vessels. In the adult the same histological relations obtain, though in less generous proportions, but it is then very tightly stretched over the surface of the bone and adherent to it.

Recognizing nevertheless that the function of the periosteum is, at least in part, that of a limiting membrane, many of us will recall instances in which a piece of stripped up periosteum was found at operation interposed between the fragments of a fracture and constituting a very real cause of mal-union.

The nourishment of the long bones, especially in the adult, is derived mainly from the nutrient artery. However, the blood vessels in the subperiosteal areolar tissue do communicate directly with the terminals of the Haversian canals and unquestionably play a part in the nourishment of the bone.

I shall not discuss the epiphyses, as we are not considering epiphyseal disjunctions at this time.

So much for what we believe we know of the growth of bone.

Authorities are agreed that there is an attainable condition of primary union. They are also agreed that bone grows in the direction of the least resistance and that its growth is retarded by undue pressure. Undue pressure could then be a potent cause of delayed or mal-union. Interference with the blood supply through injury to the nutrient artery or stripping up of the periosteum, or both, could easily be another cause of delayed or mal-union. And indeed such is believed to be the case. Separation of the fractured ends and the interposition of periosteum or of muscle or of other soft parts is accepted as a potent cause of mal-union. So also is loss of alignment with slipping past one another of the fractured ends. Suppuration with formation of scar tissue is yet another cause. Disturbances of nerve supply have also been suggested. Here should be mentioned Crile's demonstrations of his theory of the effect of fright as a cause of mal-union in fractures. I have had no experience of fractures of this class. But Bloodgood reports himself as im-

mensely impressed with Crile's demonstrations when he visited Crile's clinic.

For the sake of completeness mention should be made of the other constitutional causes of mal-union. I refer to the infectious diseases, prolonged illness, and central nerve lesions. Also syphilis osteomatocia and thyroid insufficiency. The treatment appropriate to these conditions is medical, and will not be considered here.

Inefficient splinting as it applies to alignment is a cause I overlooked, and another and very frequent cause of mal-union is surgical impatience. At the expiration of the interval given in the text books for healing, the surgeon finds motion still present. Instead of letting the part remain protected for another fortnight, frequent examinations are instituted and a definite false point of motion developed.

Yet another cause of mal-union is carrying the body weight too early by recovering bone. We see this most often after Pott's fracture.

Before proceeding to a discussion of the treatment of delayed and mal-union I wish to return for a moment to the question of undue pressure. And allow me again to repeat the sentence from Murphy with which I opened this paper. "Twenty-five or thirty years ago we practically never had a case of non-union of a fracture. To-day cases are so common that I do not know what we are going to do." He continues: "The bones are usually put in apposition, but we fail in the fact that while we get a fairly good apposition, we produce a too perfect immobilization for the best osteogenesis. Absolute immobilization is not conducive to the greatest reproduction of bone or of callus." Murphy adds: "If you are going to immobilize with casts and fixation apparatus, then the patient should be put in ambulation—start him walking, keep up a constant irritation of the ends of the fragments. That will stimulate union. It favors osteogenesis." This last was the method actually in use when I was a student in Europe some years ago.

Thus, we have voiced authoritatively what I and others of you have for some time felt to be true; namely, that the practically universal employment of plaster "casts" in the treatment of fractures of the tubular bones was mainly responsible for the unsatisfactory results, and especially for the cases of delayed union so frequently reported. For apart from the use of the X-ray and from the open operation, the employment of plaster of Paris is the only significant modification of treatment introduced since the Civil War. Mr. Lane, the leader of one school, does not use plaster of paris in his fracture work.

Says the Johns Hopkins surgeon, Joseph Bloodgood: "I must confess that personally I dislike plaster of paris in the treatment of fractures." Mr. Robert Jones, in my judgment the greatest conservative bone-setter living, would not dream of using it whenever he could get anything else. You will recall how small a part it plays in Cotton's book in the treatment of almost all but intra-

capsular hip fractures. And I might continue on indefinitely.

Now, the trouble with plaster of paris is that it does its duty too well. Not only does it immobilize the ends of the fracture so completely as to prevent their stimulating each other to increased osteogenetic activity, but by compression during the stage of reaction it prevents, or at least limits, the extension of osteoblasts. Still further, it prevents or minimizes at this time the formation of blood clot and passive congestion. The former of these we saw in Haas' fifth experiment to be one of the most potent stimuli to bone production. The latter, I shall show you in a minute, has been used as one of the means by which we can overcome non-union when present.

Now, plaster of paris has great virtues. It does actually immobilize, and from that fact alone is a most potent factor in the relief of pain following an injury. It makes easy the ambulant care of a fracture and assures both patient and surgeon against the chance of an intercurrent injury. But most virtues become vices when carried to excess, and so plaster of paris which immobilizes better than anything else, actually overdoes it. Their most irreconcilable opponents will admit that the clinical studies of Lucas Championniere and of Bardenhauer have demonstrated that immobilization in the sense that plaster of paris immobilizes, is in nowise necessary to the repair of bone. Indeed if each of you will go back over his memory of his own practice, he will recall cases which came from the cast, even after a protracted treatment, with motion at the site of fracture, which motion disappeared under the guarded reconstitution of function.

William Hessert, of Chicago, says: "Fractures that are plated may suffer delayed union, while fractures that are operated without the use of foreign material heal as rapidly as closed fractures."

Hessert attributes the delayed union to the presence of a foreign body in the wound. Some of you will agree with him, but I am not at all sure that he is right. It is always possible that the delayed union results, in part at least, from the too great fixation afforded by the internal splint. The longer the splint the more complete the splinting. I will close this portion of my paper with another quotation from Bloodgood: "Everyone now agrees that massage and passive motion and other means which improve the circulation of the limb and maintain muscle tone are part at least of any method of treatment."

Some of my hearers will take exception to that statement, until we know that they on the one hand, and Bloodgood and Championniere on the other, mean the same thing by "passive motion," the rest of us must withhold our verdict.

A friend of mine called me not long ago to see a fractured femur which I had plated for him three months before. He said he had been using passive motion, but that the patient had resisted him so much he feared something had happened to the fracture. It had. He had broken it over again.

THE TREATMENT OF DELAYED UNION AND OF MAL-UNION.

I begin this portion of my paper with a quotation from Bloodgood:

"It is not surgery for the inexperienced. Operations for appendicitis, gallstones and intestinal suture are, as a rule, much less difficult than many of the operations for fracture. I would advise the surgeon to arm himself with Lane's instruments, and if possible to witness his technic."

Edward Martin of Philadelphia, in a paper before the American Surgical Association emphasizes the importance of having the proper implements. He too, follows pretty closely Lane's technic.

Lund agrees with Martin in regard to the importance of proper instruments and apparatus. And I might quote yet other authorities. Instead of doing so, however, I will hand around Mr. Lane's instruments procured for me by Dr. McChesney when he was visiting Mr. Lane last year.

I have read you what eminent surgeons, many of international repute, had said of the Lane instruments to afford a contrast to comments by local lights. The first surgeon to whom I showed them—a most luminous body—said he wouldn't give me \$5 for the lot. Another, himself a foreigner born, found them "clumsy and German looking," and said he much preferred a tire iron to Mr. Lane's bone levers.

The treatment of delayed union will have suggested itself in the course of this paper. If there be angulation and over riding it must be corrected. Mr. Jones suggests that this be done by means of strong pulleys. He reports among others, a fracture of the middle one-third of the femur with three inches shortening occurring in a man of 30. Four months after the accident Mr. Jones was able, with pulleys, to pull this limb out to its full length and maintain it there by means of constant traction as applied by a Thomas knee splint.

Says Mr. Jones: "Non-union would rarely occur if delayed union obtained proper attention." To stimulate an effort to unite, in early non-union the fragments being end to end and the alignment correct, Mr. Jones with a heavy, well covered hammer, beats the factured ends. He then ties an india rubber tube two or three inches above and also below the fracture. He says, "I have seen scores of ununited fractures unite after this simple procedure." He calls it damming and percussing the fracture.

Even when open operation has been decided upon, Mr. Jones advocates a preliminary vigorous application of the pulley followed by a week of constant extension. In this way he hopes to obtain the final result at operation with a minimal loss of bone.

It has been suggested to stimulate the flagging osteogenetic function by the injection into the region of the fracture of alcohol, iodine, formalin (Meisenbach) and fresh autogenous blood (Bier). In the light of Dr. Haas' experiment No. 5 this suggestion of Bier's would seem to be a good one. Finally Dümreicher has advocated the employment of hyperemia. This would appear to be in every

essential identical with Mr. Jones's damming, just described.

Of course, such a person should be got out of doors and every effort made to raise his resistance. We assume that a careful physical examination had revealed none of the constitutional causes of non-union.

We have arrived now at the moment when our delayed union is manifestly a mal-union, indeed a non-union in the usual sense, and, other methods having failed, where operative interference is indicated.

When we turn to the operative side of the treatment of non-united fractures everybody who is somebody seems to be in entire agreement with everybody else who is somebody as to both what should not be done as well as to what should. Dr. Murphy backs up Mr. Lane in saying that the latter's plate should not be used, whereas everyone thinks the autogenous bone graft is indicated.

The only points upon which individual emphasis are laid are points of technic. Theoretically to be sure the views of the different observers as to what happens to the bone transplant are interesting, mainly because of their diversity. One observer believed that the transplant lived, another that it died, and a third that part of it lived and part of it died. What they all agreed upon, however, was that it did the work.

Codivilla tried to keep his transplant alive by leaving attached to it a generous pedicle of muscle tissue. This technic applied particularly to pseudorthroses of the tibia. In addition to the graft which he took from the fibula and inlaid into the sides of the fragments next it, maintaining it in place by wiring, he plastered over the whole region of the pseudorthrosis with periosteal grafts to which were attached thin plates of bone. He admitted, however, that the free transplant had a much wider application.

To judge from his writings, or rather from his dictatins, Murphy would appear to have had the largest experience with the free osseous transplant. I notice that his technic appears to change from time to time. Still the principles upon which it is based remain unchanged. The false ligaments are cut away, the ends of the bones disengaged and freshened. They are then bored longitudinally for a couple of inches and reamed out with a specially devised instrument. Lately he has been grooving them to render easier the stepping of the transplant into place. The transplant is taken from the crest of the tibia. It is 3 or 4 inches long and on cross section about three-eighths of an inch on a side, being roughly quadrilateral. The periosteum is left

intact. Murphy uses the Zapffe motor saw. It is expensive. A thin bladed chisel will do sufficiently well. This very sizable graft is driven up into the enlarged medullary cavity of one fragment far enough to permit its other end to be stepped through the groove of which I spoke into the mouth of the opposite enlarged medullary canal. Using a chisel the graft is now driven for some distance down into the second canal.

A detail of technic to be remembered is that the graft must be contacted with the fragments at either end. Occasionally Murphy compels this contact by driving a nail through one side of each fragmental shaft and against the graft, thereby forcing it up against the opposite wall of the reamed out medulla.

Murphy does not believe that the graft lives but that it offers a bridge through which the vessel in the Haversian canals are able to pass from one fragment to the other.

To this end six to eight weeks absolute fixation in plaster of paris are indicated. Patients are then got up on crutches. They wear a leather sheath splint for six months more.

Where pseudorthroses are near joints, Murphy resects till he gets out of the sclerotic area, and then makes two grooves at right angles to each other in each fragment. Into these he introduces plates of phosphor bronze. He then immobilizes in the usual way.

Permit me two more quotations in conclusion. Murphy says, "Remember that the essential point in all this work is to avoid hand contact with the wound, and not to drag anything over the skin into the wound, even though the skin has been disinfected thoroughly with iodin."

And finally this from Bloodgood in *Progressive Medicine*: "Surgeons with no orthopedic training often fail to get perfect results when their operative part is above criticism. This failure is due to the neglect of orthopedic apparatus in the after treatment."

Discussion.

Dr. Harry M. Sherman: I am quite sorry that Dr. Rixford is not here because he has had a wide experience with fractures and he looks at things very frequently from an individual viewpoint, so that his opinion always has a unique interest. Dr. Watkins has prefaced his very well written paper with some exceedingly well chosen quotations, but I am going to take exception to one of them. He quoted—"that pathology is histology which is disobeying a law." I should say that pathology is histology which is obeying a wrong law, a law which has taken the place of the original law. Everything obeys a law, and when non-union occurs it is just as much in response to law as is

union. The sooner we get rid of the idea that pathologic tissue is disobedient tissue, and recognize that it is tissue obeying a law which is dominant for the time and has superseded the law of the normal, we will have a viewpoint from which we can watch conditions with a much better understanding. The different opinions reached by competent men on the subject of the healing of bone and of osteogenesis make it very evident that the question is not yet settled, and that we do not yet know exactly what part each tissue plays in the production of new bone. From what has been said this evening, it seems not unlikely that the dictum in Erichsen—that we get most callus in those cases where most injury is done to the soft tissues—is not far from the truth.

Now, regarding the places where non-union occurs most frequently, and the conditions under which it occurs. I think that the most common cause of non-union is probably syphilis: the general condition affecting all the tissues and particularly affecting the bones; its close companion, tuberculosis, as a good second; and then the other chronic infections and acute infections, where the general condition of health is much impaired and all processes of nutrition are interfered with, will have to be added. These would be three general conditions that would be most likely to produce non-union in fracture.

The effect of nerves upon non-union I think should be disregarded. I do not think there is such a thing as non-union due to the influence or lack of influence of the trophic nerve. Jacques Loeb assured me that there was no such thing as a trophic nerve. In these cases where non-union has been credited to a trophic nerve influence or lack of influence, we are very likely dealing with a luetic case—as in a tabetic patient—and it was really lues and not the nerve condition that was responsible. The non-union which occurs in certain bones, notably the humerus and tibia, I think occurs, so far as local condition is concerned, at the place where the nutrient artery is torn by the infarction. These arteries enter these bones about their middle and go down, the one toward the elbow and the other toward the ankle. The fractures which fail to unite are those which occur below the entrance of the nutrient artery. In those cases the radiogram will usually show the lower fragment atrophied and when you expose the ends of the bones, you will see efforts at throwing out callus from the upper fragment which have been successful; efforts from the lower fragment have produced little or no callus. This is to me the simplest explanation of the occurrence of non-union in one of these bones.

As regards the age at which non-union may occur, the fact that it has occurred in children is curious because, as Dr. Watkins said and most of us agree, all reparative processes in children go on with great rapidity. But children are frequently subjects of an unsuspected hereditary taint, and I am quite certain that some of my cases had lues without my being aware of it. I remember a child who had been brought to the hospital for an apparently intrauterine fracture which had healed in an angular position. I did a cuneiform osteectomy. Non-union occurred and persisted. I transplanted bone from a dog according to the method of Phelps, which he had told me had been successful in a similar case of his own. I did all the things I then knew of in an effort to get the bone to unite. He was taken away from the Children's Hospital, and years after I saw the boy at the City and County minus that leg.

I once saw a child with non-union of the clavicle—a little girl. There is no bone which unites more readily in most cases, but this persisted in refusing to unite even after it had been wired. I discovered afterward that the child's mother was a prostitute and the evidence was that the child was luetic. Both of these instances occurred before we knew anything about the Wassermann reaction.

I have under my care now a girl who had non-union of the lower end of the radius and ulna following a simple fracture. She was the child of very decent people, a perfectly healthy little girl apparently, but I could not make the bones unite even though they had been very carefully plated. Finally I had a gleam of intelligence and had a Wassermann reaction done, and it was positive. The child was put under treatment, went East on a visit, and I have not seen her for some time. I hope to have an opportunity to operate again after the luetic condition has been overcome.

You must remember that Edmund Owens offered quite a large sum of money for anyone who could produce a child who had had non-union and in whom union had afterward occurred. If I succeed with this child I shall write to Mr. Owens and tell him that I shall be glad to get a check from him!

Regarding plaster of paris. I think we use it, or do not use it, very much as we have been taught, just as all Republican boys usually as men vote the Republican ticket. I think it can be put on badly and put on well. I do not agree that it holds the fragments so firmly that the effect of motion is entirely withdrawn. No matter what kind of a bandage you put around a limb, and no matter how tight you put it on to-day, it is loose to-morrow. The atrophy of tissues which occurs under the plaster of paris splint is the same as that which occurs under the wooden splint and bandage. I think that for some surgeons who have not been brought up in a hospital, the ready made, bought-in-the-shop splint is better than plaster of paris, for the limb can be put in contact with the splint and receive support from it immediately, whereas in plaster of paris the limb has to be held during the application of the bandage and there is much opportunity for displacement of fragments during this manipulation and during the period while the plaster of paris is setting. I am in the habit of putting against the limb a light Yucca splint, cut of the proper shape and size to fit the part and steady the fragments during the application of the plaster of paris; and I make it a point always to hold the limb myself while my assistant or associate is the one who puts on the plaster of paris bandage. And yet in just such a case in my own office this afternoon I saw a radiogram taken of a fracture of the ulna, in which there had been a little departure from the best possible position, and it would show that either there had been a slip during the application of the plaster of paris, or that even the plaster of paris splint had not been able to hold the bone absolutely immobile. I think that you may often find it profitable to tighten up a plaster of paris splint after it has been on a few days by cutting out a strip from one end of the splint to the other, closing up that gap, and putting on another plaster of paris bandage. I am certain that if I had a fracture of bone myself, I should feel much more comfortable in a good plaster of paris splint than in a wooden one.

As regards delayed union in cases where plating has been practiced—where we have put on internal fixation apparatus like the bone plate. I have only seen that occur in the tibia, and I do not know why it occurs. Roberts of Philadelphia has written on the subject lately and his explanation is not clear at all. It is simply an acknowledgment of the fact that in certain cases it does occur.

(To be concluded, June, 1914.)

MYXO-LIPOMA OF THE KNEE JOINT.

By GILBERT M. BARRETT, M. D., San Francisco
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Myxo-lipoma is, of itself, not uncommon. In fact a myxomatous degeneration of lipomatous tissue is frequently seen. Hertzler in his recent "Treatise on Tumors" says:¹ "They (myxomas) are usually associated with fibrous tissue, and less often with fatty tissue. With these tissues they form combinations in varying proportions, but usually the myxoid tissue predominates."

A lipoma arborescens of the knee presenting such myxomatous tissue has not been mentioned in any of the case histories it has been my fortune, in an extended investigation, to see.

This may be for the sufficient reason that such tissue merits no mention, but this seems hardly to meet the requirements in explaining this total absence of even an intimation that such tissue had been seen at least once. The only exception to this lack was in Hoffa's description of the formation of the villi in a lipoma arborescens, James K. Young² in 1908 brought before the Philadelphia Surgical Society a young man from whose knee he had removed a fibro-lipoma. In this report he stated that there was degeneration of the sub-patellar bursa and synovial fringes. This was the only one noted where the tissue was of either of these mixed types. Clinically it presents nothing noteworthy as a myxo-lipoma. Pathologically it presents one of two things, either, as Hoffa³ puts it—"after a trauma resulting in a diffuse lymphocytosis into the joint, most marked about the blood vessels; later there may be a mucoid and hyaline degeneration, then villi formation, up to a point of lipoma arborescens."

In the material from the case to be reported we might have had some of the fatty tabs presenting mucoid degeneration only, while the rest of them had reached the point of villi formation "up to lipoma arborescens"; or the lipomatous tissue is a normal development from fetal myxomatous tissue, and in this specimen some of the myxoid tissue still persisted.

Histologically there is a close relationship between the myxomatous and lipomatous tissues. But whether here the origin of, a link in the chain of an inflammatory process, or a degenerative process, this specimen seemed to point to the last, the result of trauma. The type of tissue was noted on routine examination of the specimen of lipoma arborescens removed by the writer from a "chronic knee." Since the myxomatous element need not be dealt with separately or particularly, we shall discuss some of the points of interest in lipoma arborescens, a part of one case of which, it happened to be.

Definition: To Johannes Muller we are indebted for the name. Lipoma arborescens is a disease of the joints, maybe of the tendon sheaths usually of the shoulder or knee; chronic in type; manifesting itself in a hyperplasia of the normally present ligamentum mucosum, including the ligamenta alaria (in the knee), or in a fatty degeneration of the villi normally found in the joint, or both; or it may be a subsynovial lipoma

arising from the fatty layer beneath the synovial membrane of the joint.

Anatomy: A complete anatomical description of the knee is not in place here, but it will be well to consider some of the features of this modified hinge joint, as it is the common site for these growths. Let us direct attention to the so-called ligaments, the ligamentum mucosum and the two similar folds of synovial membrane extending from either end of the mucous ligament outward and upward alongside the patella, called the ligamenta alaria, and the presence of a larger or smaller amount of fat under the synovia about the joint. The ligamentum mucosum is not a true ligament, but a synovial fold triangular in shape, with its apex attached in the supracondylar notch, while its base, about one and one-quarter inches in width, is about opposite the middle of the ligamentum patellae. It is thinner at the apex, varying from a cord-like thinness to a thickness of about one-fourth inch at its base, with sometimes considerable fat. The ligamenta alaria also may vary from the thinness of synovial membrane to a decided thickness due to the presence of fat. The relation of these ligaments to the margin of the anterior articular surfaces of both condyles and the patella exposes them to injury in any accident affecting the anterior part of the joint. In some knees also there exist transverse fringes along the line of the joint, corresponding in structure to the other synovial folds, and also occasionally having fat in them.

Etiology: Formerly the occurrence of these fatty growths was attributed to tubercular infection, or arthritis deformans, though Volkmann, who made the first suggestion as to the etiology, as early as 1885, classed lipoma arborescens as a condition not of necessity primarily tuberculous, but developing into it. In the years since these first descriptions it has become evident that the etiology is not so limited as at first was supposed. Many conditions may cause a hypertrophy of the synovial fringes, or render possible the formation of true lipomata from the pushing into the joint of the subsynovial fat, through a slit in the membrane.

Konig⁴ described several stages of the tuberculous process occurring in the knee joint, in the later stages resulting in fibrous masses, these leading to the formation of villous-like structures and free bodies. Levison's⁵ article, published in 1904, described a case of tuberculous lipoma arborescens and called attention to the careful work of Schmolck who in his first case reported villi presenting macroscopically and microscopically a tubercular process.

Bloodgood⁶ stated it thus: "Tuberculous synovitis though rare, may be associated with hypertrophy of the villi of the synovial membrane. The tubercular infection may be primary or secondary."

Painter⁷ in an extensive review of the literature and a careful study of his own material, did not assign to tuberculosis so prominent a place in the etiology as others, particularly Steida, whose conclusions he quoted in full. Two years later Flint⁸ published the histories of four cases, all resulting from trauma; the second only manifesting tuber-

culous involvement, and in this one the author was in doubt as to whether a pre-existing tuberculosis of the joint was injured, or whether an injured synovial fringe had become tuberculous. Goldthwaite⁹ in his "Orthopedic Surgery" accords to trauma first place. Konig's lipoma solitarius, considered by some a true lipoma, results from trauma. Rammstedt¹⁰ states that the condition must be looked upon as a traumatic arthritis. "Following severe, slight, or repeated trauma, or even over-exertion, certain traumatic lesions may develop, . . . the most frequent result is villous arthritis in its various forms. There may be a single lipoma, a few villi, or the entire joint may be covered with these fringes."

Hoffa¹¹ has shown the etiology to be (1) trauma, from without, single, slight or severe, and repeated slight trauma; or (2) from within, as free bodies, dislocated menisci, loose joints, arthritis deformans. To which list Bloodgood¹² adds tabes dorsalis with its arthritis.

McIlhenny¹³ in 1911 claims that Schuchardt disproved the tubercular theory and relationship. He himself thinks trauma, injuring the ligamentum mucosum, or a chronic inflammatory process causing its hypertrophy till it is pinched between the bones of the knee, the chief factors. From what can be gleaned from the literature and a study of the cases presented, trauma appears to be the principal cause of lipoma arborescens, as well as of the true lipoma and the rare osteo-periosteal lipoma.

Gross Pathology. Generally there is a thickening of the joint capsule; with the synovial membrane as well as the capsule overspread by masses of fusiform or round, fatty villi, projecting into the joint cavity. Hoffa, Steida, Painter, Konig, Bloodgood, Rammstedt and others found that these may occur singly, or may be multiple, but joined together in masses or clumps, so that the entire joint may be invested. Depending upon the type, the membrane may be denser and thickened, thinned out and fatty, or the membrane may be normal, the only changes noted being hypertrophy of the adipose and connective tissue elements, resulting in a growth within the articulation, usually more fatty than fibrous. If as in cases reported by Painter,⁷ later by Meisenbach,¹⁴ and still later by Rammstedt,¹⁰ the growths may be single, or multiple masses, they may simulate true lipomata. If as in the lipoma solitarius of Konig, the fat pad located between the upper boundary of the patella and the upper confines of the quadriceps pouch, is hypertrophied. If as in the more frequent villous arthritis, the villi normally found within the joint, along the ligamentum mucosum and the plicae alariae, are hypertrophied through precedent traumatic or inflammatory conditions, and may completely fill the joint cavity as villous fringes, varying in size, shape, color and consistency. There may be adhesions between any of these and the parts making up the joint, and these are often broken up, only to reform in the same or other location. If attached to the upper border of the articular surface of the femur, the capsule may be so held that motion is limited,

and pain may be caused by efforts to effect movement. If the ligamentum mucosum is abnormal, usually from trauma, the peduncular fat-pad normally present and acting as a cushion between the femur, patella and tibia, may become enlarged and unelastic, and mechanical obstruction to motion is the result, with pain ensuing when almost any motion is made. That complicating conditions may be present none can deny; osteo-arthritis, exostoses, dislocated menisci, rupture of the cruciate ligaments, the arthritides of tabes and tuberculosis.

Microscopic Pathology. The lipomata are found to consist of bands of fibrous tissue, some narrow, irregular and loosely woven together, others regular and broader and more compactly placed. Throughout this fibrous tissue blood vessels are usually found, sometimes numerous and sometimes infrequent, sometimes thin-walled and at other times the walls are thick. Between and around these fibrous areas are found adipose tissue, generally with few and thin-walled vessels, their lumina sometimes obliterated. The synovial tissues are generally infiltrated by masses of fatty globules; in some cases the normal capsule has undergone a fatty degeneration, and in parts, the synovial membrane covering the lipomatous villi shows a decided scarcity of blood vessels, the adventitia of which also shows fatty changes.

Clinical History. Gradual onset in nearly all cases. In most instances a history of trauma, extra- or intra-articular, recent or remote, may be elicited. This may be severe and single; or slight and frequently repeated, or so slight as to almost escape notice. It may be that over-exertion is the chief point in the history. Following this at varying intervals the patient will notice a lassitude, a disinclination to work or walk, fatigue, disability, and sometimes pain, usually increased on motion. Sometimes the patient complains of a fulness in the knee, sometimes of the knee "catching" or "locking," states that going up or down stairs or a hill is productive of more discomfort. Rammstedt¹⁰ in his monograph in 1909, in which he brings the bibliography to date, gives it as his experience that patients complain of pain, which is always increased by exertion, and there may be sudden attacks of great severity. "In raising the leg of a patient who is lying down and sharply flexing the leg on the thigh, one can tell by the presence or absence of pain whether there is villous formation or not."

Tenderness on pressure is rarely found as a constant symptom, but in the patients with considerable effusion it may be marked, or when some intra-articular trauma has been recent. Swelling may be present and annoy the patient by limiting his motion somewhat, or there may be just a sense of tenseness due to the fluid in the joint, or to the masses of villi which encroach upon the articular space.

Effusion varies in the different types, being almost wholly absent in the fatty form due to general obesity. "Fluid is not present in excess," according to Goldthwaite, "except as it may happen that the examination be made shortly after an occasion

when the fringe has been pinched and a traumatic synovitis induced."

"Locking" or "catching" is mentioned by Hoffa, Rammstedt, Painter, Goldthwaite, McIlhenny and others as a fairly prominent symptom, though agreeing that this "locking" is not so liable to occur as in movable joint bodies or fractured and dislocated menisci. Goldthwaite and Rammstedt attribute it to either a sufficient hypertrophy of the joint tissue, or a sufficient joint relaxation to permit the ligamentous pad, previously mentioned, to drop down into the articulation and become pinched.

Disability of some degree is present in nearly all cases. Imperfect function is the rule. It may vary from slight discomfort on too-long standing to a condition of total inability to walk, sometimes with the knee joint flexed to a varying degree, and fixed. In Young's² case partial ankylosis was present. Flint⁸ gives limitation of function as one of the two noticeable subjective symptoms, while McIlhenny¹⁸ calls especial attention to restricted motion. In certain individuals this disablement is more noticeable in going up or down an incline or stairs.

Fatigue early after exertion is decidedly noticeable. Fixation of the joint in a flexed position does not so often occur in this condition as in dislocation of the semilunars. Objectively, obesity is given first place by Meisenbach¹⁴ who says "Lipoma arborescens of the knee joint usually occurs in patients who have taken on considerable weight. In women it is noted about the age at which one would expect the menopause, and may be associated with fatty degeneration of the heart and other organs." It may affect both knees in this type, usually one more than another. Swelling was found by Flint⁸ in his four cases, and Painter⁷ in a large series also found it present in many. Johnson,¹⁵ Goldthwaite,⁹ and Rammstedt¹⁰ all mention swelling and give some description of its location and the feeling it imparts on examination. Comparative enlargement of the affected knee when but one is giving trouble, as in traumatic knee; or the worse of the two, when both are involved, as in the fatty knee of obesity, is to be looked for and the measurements will be found to differ by from one-half cm. to several cms. With this greater size of the involved joint, there is frequently an atrophy of the quadriceps tendon and of the calf muscles from disuse.

Redness is not present as a rule, but may be seen in recently traumatized joints, whether from extra- or intra-articular causation. Surface temperature, as would be supposed, is rarely changed, and Painter, Meisenbach, Flint, Rammstedt, and McIlhenny all consider it negligible. Interference with passive motion of the joint is not found often, though in patients with excessive hypertrophy it may exist, and spasm of the hamstrings is stated to sometimes occur, maintaining the joint in partial flexion. In other words, extension is interfered with. Crepitation is commonly present and is described as soft, boggy, spongy, or meaty by most writers.

The X-ray must not be forgotten in any ex-

amination of the knee, whether in the recently traumatized joint or "chronic knee." In the lipomatous joint the rays may be more helpful by elimination than by confirmation, but as far back as 1904 Levison⁵ employed the X-ray and found a "shadow on the outside" of the joint. Generally the plates show light shadows underneath the patella, or to one side or both sides of it. On page 248 of *Progressive Medicine* for 1910, in Bloodgood's résumé, it is stated that "X-ray after inflation of the joint with oxygen will always make it."

Differentiation must be made between this affection and injury of the semilunars by the history of its cause, and by the more acute onset of the latter, the localized tenderness on pressure over the inner semilunar, as it is much more frequently injured, the persistence of pain referred to the front of the knee, less tenderness over the inner border of the patella, by the locking of the joint, and on rotation outwards there is quite severe pain owing to the frequently accompanying injury to the internal lateral ligament.

Floating cartilage, or better, loose bodies, for they may be fibrous, fatty, cartilaginous, or osseous, can often be discovered by the patient, and at different times may be in different places, unless attached by a pedicle. Effusions are common, and the pain acute when "locking" occurs, but otherwise the pain is not constant. Osteoma of the joint or exostoses will sometimes be found by manipulation of the joint, but not often unless of good size, and not if in the joint, but near it, as presented by Jones,¹⁶ where the tendons or muscles are caught around or over them. Rupture of the crucial ligaments is generally the result of more severe traumatism than is necessary to produce the other injuries or derangements of the joints.

Despite most painstaking care, errors occur inevitably in the diagnostic field, but with a better knowledge of the etiology and symptomatology, and a more thorough examination with more frequent use of the skiagraph, these errors will become less frequent.

Treatment of these masses according to Rammstedt,¹⁰ "Should be a conservative one so long as the patient is not too much inconvenienced. As long as physician and patient have patience, a gradual recovery may be brought about through massage, heat in the form of mud-baths, and steam, sponge-compresses and methodical exercise. Operation should only be resorted to in the severest cases."

Bloodgood says: "I wish to emphasize this, that patients suffering from recurrent attacks of joint pain and effusion, with or without 'locking,' should be subjected to operation. Some anatomical defect will be found which can be repaired. These operations at a late state relieve the patient of many of the symptoms, but in some cases fail to restore full joint function."

Konig says: "These injuries, though not of the serious type as fracture or dislocation, give no assurance to surgeon or patient that a permanent disturbance of, or even ultimate loss of, function

may not result." Flint puts the conditions thus: "It is not usual to operate upon traumatic knees in the early stages unless there is the possibility of making a fairly accurate diagnosis." It is his opinion that "there are many knees not operated at the present time which should be opened because of the benefit to be derived."

If, after an intelligent trial of the conservative plan of treatment, an operation is decided upon, the technic of the operation is simple according to Rammstedt, quoted above. Jones, also quoted above, insists "that not homage, but allegiance to asepsis is necessary for success in joint surgery," and he gives his own careful technic.

SUMMARY.

Lipoma arborescens is a not uncommon joint defect, not a true lipoma, but a hypertrophic condition of normally existent and placed tissue. Goldthwaite's classification of the causes into three types, though arbitrary, I believe to be correct, and tending to a better understanding of these cases. Trauma is the principal etiological factor in the production of all the lipomatous growths of the knee joint, true lipoma, lipoma solitarium, lipoma arborescens, and the rarer osteo-lipoma. Tuberculosis as well as syphilis and arthritis deformans, may be causative, complicating, or associated conditions, and either primary or secondary.

The pathology is that of an hypertrophy of the adipose and connective tissue elements within the articulation, resulting in a growth usually more fatty than fibrous. The histology is that of a typical chronic inflammatory condition, with whatever associated condition or conditions, tubercular, luetic, or rheumatoid.

Diagnosis is not easy or certain, but in the very obese, or with history of trauma, slow onset, imperfect function, limitation of motion, swelling, recurrent effusion, occasional "locking," fatigue after exertion, tenderness on pressure chiefly over the side of, or beneath the patella, ability to palpate a mass on one or both sides of the patella, with enlargement of the affected knee, and with the employment of the X-ray, which generally shows the shadows, the diagnosis can be made with probability.

As to the prognosis: without treatment there is little prospect of a restoration to normal either as to the articulation or its function. The treatment of the so-called "chronic knee" should be more frequently operative. If the diagnosis is made, with probability, of lipoma arborescens, it should be removed. If the patient has been suffering from a knee joint with imperfect function, who has been treated with salicylates heroically, and with careful conservative treatment, with no improvement, he should be given the advantage of the present-day operative technic.

The prospect of cure in lipoma arborescens, uncomplicated by arthritis deformans, syphilis, or tuberculosis is excellent.

Passive motion is to be instituted early, and persisted in, and the other well-known aids as heat, in the form of baking, gentle massage, and moderate exercise should be employed, as needed.

Case report. This is a report of one of several patients I have seen recently who have developed villous arthritis from trauma, one having an associated tuberculous condition in the joint, having been in a cast, in the hands of an osteopath, and in a brace; a second had suffered a dislocation of the internal semilunar after a fracture of the same; a third presented the picture I shall endeavor to bring to your notice. In the first a resection was done with excellent result; in the second a removal of the meniscus was done, after he had had tried upon him all the maneuvers possible for two osteopaths to perpetrate, with a marked increase in his pain, disability, synovial irritation, and effusion; the third was as follows:

C. B., native of Malta, age 44. Father died of Malta fever. Mother living and well. Four brothers and sisters, all dead, cause unknown. Has been well and vigorous. Neisser infection once but no joint involvement. Denies lues. Not addicted to tobacco or alcohol. No cough. No afternoon fever. No expectoration.

For past twenty years patient has had trouble with right knee. At first, knee began to swell, with no history of trauma to which the condition could be directly attributed, but patient has always been a hard worker, and subject to injuries of various kinds and degrees. This swelling would last for two or three days, then disappear. These attacks recurred two or three times yearly, no redness, no pain. This course was noted until about one year ago, when the knee became very much swollen and did not decrease in size as usual, but became steadily worse until February, 1913. Patient said that for the last few years has noted pain on arising, but after working and exercising the pain and discomfort in the knee became less noticeable. His trouble was localized to the right knee, no other joint having been involved at any time. Patient well-nourished and strong, lungs and heart normal, urine examination disclosed no renal disorder. Wassermann negative, reaction to tuberculin negative, hemoglobin 90%.

On inspection right knee is seen to be larger than its fellow, on measurement proving to exceed the left in circumference by one and three-quarters inches with some atrophy of the quadriceps. No spasm on motion, no increased surface temperature, no redness. There was a puffy swelling on both sides of the patellar ligament, extending above and below the patella, more pronounced on the inner side, and there was boggy or spongy crepitus. No effusion could be made out. X-ray plates showed light shadows under the patella, and some osteo-arthritis, more marked on the inner tibial articulation.

Diagnosis, probable lipoma arborescens, or villous arthritis, due to or complicated by the osteoarthritis. The joint was freely opened and the masses were found extensively attached to the patellar tendon, filling the articular cavity, and extending as well from the uppermost limits of the quadriceps pouch to the lower limits of the joint capsule. These masses were very vascular, and bleeding was free wherever adhesions or attachments were freed. Some slightly cloudy fluid was present. The color was striking, being a dark purple, bordering upon black in some areas, very little of these masses being the usual yellowish color. After thorough removal of the lipomatous mass, the joint cavity was mopped with tincture of iodine, dried thoroughly, and sutured, chromic gut Nos. 1 and 2 for the capsule and silkworm gut for the skin. A cast was applied, cut down and held with adhesive and bandage. Passive motion begun on the seventh day, sutures all out by ninth day, healing intact. Massage with warm olive oil, passive and active motion were had till patient could flex to 90 degrees.

The reason for the color noted in these masses may be that the patient, being a native of Malta, may have suffered a mild attack of the fever

characteristic of the island. One of the two diagnostic symptoms noted by quarantine officers, is a recurrent swelling of the knee of which this man complained. I have found no reference to the color of the interior of these joints when affected with the characteristic arthritis of Malta fever, but it may suffice to explain whatever is not accounted for by the hemorrhage into the fatty masses caused by pinching or other trauma.

Microscopic report of tissue was as follows: Microscopic sections show the tissue to be made up primarily of normal adipose tissue. It is extremely vascular. The connective tissue cells are infiltrated with fat, and are usually blood-streaked. Some leukocytic infiltration wreathes the smaller vessels.

Strands and areas of young connective tissue cells are demonstrable especially in highly vascularized areas. These are stellate with anastomosing branches. Some are spindle-shaped. These embrace a mucoid substance. Diagnosis: Myxolipoma.

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ARTIFICIAL PNEUMOTHORAX IN ADVANCED LUNG TUBERCULOSIS.

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During the last few years the operation of artificial pneumothorax as a therapeutic procedure in a certain type of cases of lung tuberculosis has come into general use and its value determined.

Following favorable reports from all operators who have obtained forty-five or fifty per cent. of recoveries in an otherwise hopeless condition, it is natural that the attention of clinicians should turn to the possible value of lung compression in other stages of the disease than that in which the production of an artificial pneumothorax may be said to be the operation of choice.

Tuberculosis mainly confined to one lung, not too far advanced but advancing under proper treatment, while the opposite lung is fairly free from disease, represent the ideal conditions under which a favorable outcome may be expected from this method of treatment, but only a small percentage of cases correspond to this description. The consideration of other indications for compression, such as very early cases, hemorrhage, and advanced bilateral disease in which delay of its progress or amelioration of its symptoms may be hoped for is at the present time extremely important. The following series of cases is reported for the reason that they all present the same conditions, viz., advanced bilateral disease with cavities in one lung so situated that constant and wearing cough was the result.

When lying in certain relations to the larger bronchi cavities may act as reservoirs for pus and be emptied at intervals without greatly depressing the patient. In the cases here reported the cavities were situated above the hilus, draining a large area of softened tissue directly into the bronchi and therefore rapidly weakening the patient by a constant cough which could not be controlled by drugs, or by change of position. It was hoped by compressing the lung containing these cavities to relieve this distressing symptom and therefore prolong life or at least make it more endurable.

Case I. This patient has been ill about two years and on examination presents the following conditions: Consolidation of the entire upper part of the left lung with cavities above the hilus and partial consolidation of the base. The right lung is less involved but shows consolidation above the clavicle and an area of partial consolidation extending from the hilus to the base. These observations were confirmed by the Rentgenogram. The cough was severe, and expectoration abundant and fever high. In addition to the tuberculosis the patient suffered from a chronic nephritis. During the first week in June, 1913, his left lung was compressed by one thousand cubic centimeters of nitrogen injected at intervals. Following this compression the cough became very much better, the temperature came down and expectoration practically ceased. In fact he was so much improved that he went to the country for two months. On September 24th the cough again becoming troublesome he was given another compression which relieved it. The nephritis however had become much worse and on October 23rd, 1913, he died of uremia. No further X-rays were obtained but examination of his chest showed no particular change in the condition of his lungs.

Case II. This patient was a woman, having advanced tuberculosis of both lungs, large cavities in the left and a constant and wearing cough. She was much emaciated, had high afternoon temperature and night sweats. In the hope of relieving for a time the distressing cough her left lung was compressed early in September. Following this the temperature came down, appetite improved and cough practically ceased. This improvement lasted for two months when softened tissue in the opposite lung broke down and she died in December.

Case III. This patient corresponds to the type of advanced bilateral disease before described.

There is diffuse disease of the right lung with a large cavity at the apex. The left lung shows a general infiltration with many tubercles scattered throughout, but it is less advanced than the right. The patient suffered from severe cough which seemed largely due to the cavity at the right apex. Following compression of the right lung the cough and expectoration were notably diminished. Patient improved markedly and the compression was maintained from September 22nd until the present.

The Roentgenograms taken by Dr. Anna K. Davenport after compression show the right lung compressed against the posterior wall and the alteration in size and position of the cavity. As a result of this compression the patient's cough improved very much. Expectoration that was formerly very profuse diminished to one ounce to one ounce and a half per day. The present condition is satisfactory. No marked progress has yet occurred in the opposite lung. The cough, considering the advanced nature of the disease, is not severe.

Case IV. This patient showed no change in her condition after compression. She has been ill several years and at the time of operation was much emaciated and very weak. X-rays could not be

obtained but physical examination showed advanced tuberculosis of both lungs with cavities in each. Lung compression was done in September, 1913, and repeated in October, but no effect either for better or worse could be discerned. This patient's disease has steadily progressed as would be expected and the absence of even temporary improvement is attributed to the fact that cavities were present in both lungs.

Case V. This patient was a woman 65 years old with advanced tuberculosis of both lungs. Examination and X-rays showed a large cavity in the right lung above the hilus, which was the probable cause of constant and distressing cough. In November, 1913, this lung was partially compressed with nitrogen gas which resulted in a marked reduction in cough and expectoration and in reduction of temperature. Following the operation the sputum averaged an ounce to one and one-half ounces, while before from four to six ounces daily were expectorated. As the gas became absorbed the cough increased and the patient requested further compression. The further history of the case differs in no way from the usual course of advanced tuberculosis and at the present writing the disease has increased, but no more than one would expect in similar cases without operation.

On going over this series of cases we may conclude that partial compression of the lung in certain advanced conditions of tuberculosis may result in improvement, where the distressing cough is due to a cavity draining into a large bronchus.

We are also impressed with the fact that compression of the lung in these advanced bilateral cases has not been followed by rapid increase of the process in the opposite lung.

In fact all of the cases, with the exception of case IV, were so much relieved and so much improved as to comfort, appetite and so forth, that I shall continue to advocate this procedure in those conditions which correspond to the above described classification, even though a temporary relief only may be expected.

IODINE A SPECIFIC GERMICIDE IN RESPIRATORY AFFECTIONS.

(Preliminary Report.)

By SANFORD BLUM, M. S., M. D., San Francisco Polyclinic.

Few drugs have so successfully stood the test of time as iodine. Not only does its past record bear evidence to its worth but the esteem in which it is held at present is evidenced by its unanimous employment in the practice of medicine. It is used not only as an antisyphilitic, but in gynecology, dermatology, internal medicine, pediatrics, surgery, and in every branch of medicine.

The methods of administration comprise practically all methods known to the physician. It is given internally in the form of the various salts, the tincture, and in organic combinations. Externally iodine and its compounds, organic and inorganic, are used. It is used as a local application to mucous membranes, in gargles, hypodermically, in suppositories and by inhalation.

Its effect is known. The mode of action is obscure.

Iodine is classified (with especially arsenic, iron, mercury), as an alterative. This is equivalent to

saying that its mode of action is unknown, for an "alterative is a medicine or treatment which gradually induces a change, and restores healthy functions without sensible evacuation." (Webster.) (Lippincott.)

In the treatment of respiratory affections iodine and its combinations hold an important position. That they increase and facilitate secretion by the respiratory mucous membranes is a well-known fact. It has been assumed that this action is essentially that of functional stimulation.

The purpose of this contribution is to make known a method by which iodine favorably influences respiratory infections, viz., a specific germicidal action.

In two previous communications,¹ "Clinical Features of Endemic Grippe in Children in San Francisco and Vicinity," "Grippe on the Pacific Coast,"² I have directed attention to the beneficent action of the iodides in cases of respiratory grippe. Extensive study of the effect of iodides in respiratory affections has led me to the conclusion that the iodides exert a specific germicidal action on bacteria infecting the respiratory mucous membranes. My studies on which this deduction is based include cases of influenza, staphylococcus, streptococcus and pneumococcus infections.

The conclusion that iodine has a germicidal action in respiratory affections is supported by the facts that (1) iodine and the iodides possess definite antiseptic properties, (2) iodine and the iodides are eliminated by the respiratory organs.

In corroboration of the first assertion the following observations are recorded:

Staphylococci and streptococci were inoculated upon (1) bouillon containing 1% ammonium iodide, (2) bouillon containing 1% hydriodic acid, (3) bouillon containing 1% each iodine and potassium iodide.

RESULTS.

- (1) Bouillon, 1% ammonium iodide, incubated at 37 C.
after 24 hours, clear, no growth.
after 48 hours, clear, no growth.
- (2) Bouillon, 1% hydriodic acid.
after 24 hours, clear, no growth.
after 48 hours, clear, no growth.
- (3) Bouillon, 1% iodine and 1% potassium iodide.
after 24 hours, no growth.
- (4) Bouillon (control), after 24 hours cloudy, exuberant growth.

As proof of the second assertion the following reports seem conclusive:

(1) Feb. 27, 1912, 11 a. m. Two grains ammonium iodide (in capsule) were administered to an adult male.

Feb. 28, 1912, 2 p. m. Iodine reaction in sputum positive.

Feb. 29, 1912, 12 m. Reaction in sputum negative.

(2) March 1, 1912. One grain ammonium iodide (in capsule) administered.

March 2, 1912, 12 m. Iodine reaction in sputum positive.

(3) Feb. 26, 1914. One grain ammonium iodide (capsule) given.

Iodine reaction in sputum was negative after 1, 2, 3, 5, 10, 15, 20, 25, 30 minutes.

Positive after 36 minutes.

Positive after 8 hours.

Positive after 17 hours.

Positive after 20 hours.

Positive after 22 hours.

Positive after 22½ hours.

Negative after 23 hours.

To eliminate possible source of error by gross contamination of discharges during administration the drug was given in capsule. Moreover the reaction was absent in the sputum until 36 minutes after the drug was taken. Also the iodine reaction was found to be negative in mucus obtained by swabbing the tonsils and buccal mucous membrane two hours after the iodine was administered, at which time the reaction was strongly positive in the sputum.

In the urine the reaction was negative at 1, 5, 10, 20, 30, 40, 50, 60 minutes after administering gr. i ammonium iodide in capsule.

Positive at 75 minutes.

Positive at 2 hours.

Positive at 8 hours.

Positive at 17 hours.

Positive at 20 hours.

Positive at 22 hours.

Negative at 22½ hours.

That iodine is eliminated in the secretions in quantities sufficient to inhibit bacterial growth is demonstrated by the following experiment:

Streptococci and staphylococci were inoculated upon culture media:

(a) Equal parts bouillon and urine from individual 20 hours after receiving one grain ammonium iodide (at which time iodine reaction in urine was positive). No growth occurred after 24 and 48 hours.

(b) Equal parts bouillon and urine from same individual when iodine reaction not present in urine. Luxuriant growth after 24 hours.

An interesting point developed in the above reported experiments is the possibility of employing iodine internally as a urinary antiseptic.

In the treatment of the respiratory affections I have employed with equally beneficial results, hydriodic acid and the iodides of potassium, ammonium, sodium and strontium.

The syrup of hydriodic acid is especially applicable for adults with sensitive digestion and for children. Apart from this consideration the desideratum is to give sufficient iodide to definitely affect the respiratory secretion without causing unpleasant and unfavorable symptoms—coryza, lachrymation, and digestive disturbance.

(1.) Cal. State Jour. of Med., June, 1910.

(2.) Archives of Pediatrics, Vol. xxviii, No. 8, Aug., 1911.

HYGIENIC SHOEING—ANATOMICAL FACTS VS. CONVENTION AND STYLE.*

By C. C. CRANE, M. D., San Francisco.

(Continued from page 156, April issue.)

Such shoes are approved of, or at least permitted, by the parents during infancy and childhood, but during early adolescence they are promptly discarded as though the wearing of shoes which are comfortable and allow the feet to functionate were a sin, and in their place is substituted those shoes which will not permit of unhampered foot-function; those shoes which will not promote strength of the feet; those shoes which are, in fact, prone to institute foot-ills of various kinds and in varying degrees. And this substituting performance is nothing more or less than a conventional habit, neither lacking in precedent nor warranted by anatomical facts—a habit which is a costly tribute with a painful penalty, all in the name of style!

It may be worth our while to consider some of the more prominent faults of the ordinary shoe, and among these, as may be seen in the shoe submitted, is that one which crowds the toes together, abducting the big toe and its neighbor, adducting the little toe and its neighbor, the result of which is the elimination of the normal weightbearing line and the conversion of a stable foot-mechanism into an unstable foot-mechanism.

Another fault is that the shoe is often too short for the foot, and this, coupled with the common fault of upward curving of the distal portion of the sole, favors the continuation of, if not the production of, the so-called "contracted foot," which is so often seen and which is so difficult to cure.

Still another fault is the insufficient amount of leather which is used in the construction of the vamp, especially across the instep, and it is easy to understand how such a factor, combined with the usual position of the reinforced seam which extends across this portion of the shoe, will make almost certain the development of a flattened anterior arch, another condition most obstinate to cure.

In that portion of the shoe which corresponds to the longitudinal arch of the foot exists one of the most objectionable faults in the ordinarily constructed shoe. Little or no regard is paid to the fact that an arch is present on the inner side of the foot which is so constructed that it almost entirely disappears at the outer side of the foot.

To the careless disregard of the presence of, the character of and the function of, this arched portion of the foot may be attributed, in the author's opinion, a very large proportion of the foot-ills variously alluded to as "weak feet," "foot strain," "painful feet," "pronated feet," "fallen arches" and "flat feet."

And still another fault is that which fails to recognize the normal outward excursion of the cuboid bone which is incident to weightbearing, the importance of which has been emphasized by Dane, Osgood and others.

For practical purposes the cuboid bone of the

* Read before the San Francisco County Medical Society, November 18, 1913.

foot should be considered as a wedge-shaped bone with its blunted apex directed toward the inner side of the foot and with its base forming an important portion of the outer border of the foot. Obviously, if the shoe is so constructed that it interferes with the mechanism of this bone, the result must be translated in terms of valgus. The group of major faults in shoe construction includes those abusive structures which are unjustly denominated "heels."

The heels of shoes, more particularly of women's shoes, are usually too high and the treading surface too small, the ill-effects of which are manifested by the shortening of the muscles of the calf group; by the pronounced equinus position of the foot; by the disability of the dorsiflexors of the foot; by the marked insecurity about the ankle joint where security is of the utmost importance because, as walking is practised by shoe-wearing people, the heel of the shoe is the first part to come in contact with the surface walked upon. Although the immediate and local effects of such heels are quite apparent, there may be more latent and more remote effects which are none the less serious, for it is very probable that such heels also constitute a most important factor at least in the perpetuation of, if indeed not in the production of, those postural strains which are so often referred to the knees, to the sacroiliac joints and to the back.

A not insignificant fault about the heels of shoes, and this fault is more marked in men's than in women's shoes, is the row of nails which is made use of to keep the heels from being worn away on the outer side, thus baffling the foot in its attempt to maintain a strong position of supination and forcing it into that undesirable and harmful position of pronation.

Finally there is to be mentioned a fault which is present in nearly all shoes. This is the fault of pronation. Surely a foot may not be blamed for yielding to such a pernicious influence when this influence is present when the foot is at rest and is exaggerated when the foot is used for weight-bearing.

The faults alluded to do not comprise all, but merely the more conspicuous and the more vicious ones. Although they are rather glaring even in the shoes submitted, yet they are much more evident in the usual shaped shoes as the types submitted are advertised as "orthopedic" with how little regard for veracity is left with you to decide.

It has already been insisted upon that a hygienic shoe should be patterned to fit a normal foot, but before taking up the detailed plan of construction of such a shoe it may be well to review some of the more important characteristics of the normal foot which are apparent in this model of an adult foot of an Indian who had never worn shoes.

You may notice that the inner border of the foot is slightly concaved; that there are distinct inter-digital spaces, the one between the big toe and its neighbor being large enough to accommodate an extra toe; that the big toe is slightly adducted so that when the inner borders of the feet are in contact, if straight lines are projected forward through the longitudinal axes of the big toes, such lines soon intersect; that the inner side of the

instep is thicker than the outer side; that there are two arches present, the anterior or transverse, and the posterior or longitudinal, and that these arches are distinct and yet they blend with each other; that the longitudinal arch diminishes in height very perceptibly as the outer border of the foot is approached; that the cuboid bone becomes more prominent when the foot is used for weightbearing than it is when the foot is at rest; that the plantar surface of the heel is convexed both from before backward and from side to side; that the heel is not much more than half as wide as the widest part of the toe end of the foot; that the insertion of the tendo Achilles is not in the middle of the heel but distinctly to the outer side; that when the foot is used for weightbearing, with the toes directed forward, it is in a definite position of supination which is the position of maximum strength.

The companion model which is submitted represents the same foot when carrying weight and shows the excursion which the arches enjoy and you will probably agree that this weightbearing model appears to have even a greater amount of potential power than its companion model does at rest.

Although it is hardly within the intent of the paper yet it may be interesting to contrast some of these other models with the ones already studied, their corns, callosities, bunions, distortions, deformities and general alterations serving to bear mute testimony to the punishment to which they have been subjected by faulty shoeing.

These normal characteristics are the chief ones to be considered in the construction of hygienic shoes and they serve to indicate that such a shoe should be straight or slightly concaved on the inner side; that it should be fully as long as the foot is when the foot bears its normal top-weight; that it should be roomy enough at the toe end to avoid obliteration of the inter-digital spaces; that the sole should be flexible; that it should be flat at the distal end to avoid hyperextension of the toes; that it should be slightly convexed in that portion which is covered by the transverse arch of the foot; that it should be molded in that portion which is covered by the longitudinal arch in accordance with the anatomical findings, that is: much higher on the inner side than on the outer side, and in such a manner and to such a degree that it does not interfere with or touch the longitudinal arch but will, at the same time, act as a support to this arch when it sags, as it does, physiologically, from fatigue; that the heel end of the sole should be slightly concaved from side to side and from before backward; that the heel of the shoe should be broad, low and slightly higher on the inner side than on the outer side, the latter to counteract the pronating effect of the calf group of muscles; that the inner side of the shoe, at the instep, should be fuller than the outer side, at the instep, to correspond to the greater thickness of the former and that some fullness should be present on the outer side of the shoe to permit of the valuable excursion of the cuboid bone in weight-bearing.

The shoe should be made of the blucher type

which permits of better fitting to the constantly changing size of the foot as it occurs, dependent upon the various changes of temperature, activity and rest and, too, because such a shoe permits of more freedom over the instep portion.

The question as to the advisability of wearing a high or a low shoe is not entirely insignificant. High shoes are often worn and insisted upon because of the presumption, probably a faulty presumption, that high shoes support weak ankles; but whence came the weak ankles? Did nature not do her work well, or have high shoes, with their bandaging and constricting effects, crippled these parts to such an extent that relief is sought from just the source which produced the disability? A good rule would be to wear low shoes; high shoes may be worn when the inclement weather makes their use temporarily advisable.

In order that the best results may be obtained from hygienic shoeing it is imperative that suitable stockings be used or some of the desirable effects will be counteracted if not defeated. The ideal stocking is the digitated stocking. To enhance the value of hygienic shoes the wearer should toe forward when standing and walking.

All this in the name of that complex problem of balance and human efficiency.

Discussion.

Dr. J. T. Watkins: Someone, I think it was Mathew Arnold, has defined criticism as "The effort to detect and to direct attention to whatever was best and most beautiful in the world." Accepting this definition, it is now my function and pleasant privilege to direct your attention to and to emphasize the excellent qualities of Dr. Crane's paper.

Especially am I able to do so since Dr. Crane was kind enough the other day to read his paper to me. Recognizing very clearly as I then did with what care I must prepare this discussion, if I would have you believe it to be an extempore effort, I began to take copious notes on my cuff. And there I noticed the first point which I want to make here.

Almost at once I found that, instead of making a critical appraisement of what he had to say I was revelling in the melody of Dr. Crane's euphonious diction. I was disregarding what he said while admiring how he said it. Lest you may have been similarly affected I propose first of all to summarize Dr. Crane's paper, and then to enlarge upon portions of it.

That deformations of the feet are usually due to bad shoes; that distortions of the feet may cause no subjective symptoms; that subjective symptoms in such feet may often be relieved by proper shoes; that deformations which cannot be relieved by proper shoeing might have been prevented by proper shoeing; orthopedically speaking all of these things may be said to be axiomatic.

That manufacturers turn out bad shoes because those are the shoes the public wishes to buy does not call for argument; and that the medical profession has been remiss in not warning the public of the ill effects consequent upon the wearing of bad shoes is as certain as it is easy to explain. The profession didn't know all the facts itself, and didn't heed those it did know or suspect.

Now the first thing I want to say is that there can be such a thing as too good a shoe theoretically for a given foot. I recall that the first money I spent after I was married went to buy my wife what I considered to be a proper pair of shoes. And as she since said in the dialect of her prov-

ince, "That orthopedic shoe gave me the first cawn I ever had in all my bawn days."

In fitting a defective thin foot we must seek to find a shoe which need not necessarily have the most ideal shape; that feature can be overdone. The shoe must be that in which the particular foot in question finds the most comfort.

While I listened to Dr. Crane's strictures on the profession I looked at his foot and then at my own. In each instance my eyes were soothed by encountering the well-known orthopedic shape, suggesting perhaps more than any other one thing a ham encased in leather. But when I turned to see how Mrs. Crane and Mrs. Watkins were shod there was no denying that their shoes broke every canon of the orthopedic faith and conformed as consistently to the conventional idea of perfection. Still much as I admired Dr. Crane's feet I do not think I looked longest at them. I am pretty sure that I didn't.

However, the point I would make is this: If we, Dr. Crane and I, of the strictest sect of the Pharisees, cannot get better results than this even at home, how can we consistently expect good results from you poor "Publicans and Sinners"?

For several years I have examined the feet of all candidates for positions in the police and fire departments. In all I might have examined considerably over 3000 pairs of feet. The remuneration is about one cent a pair and is, I think you will admit, not excessive. However the opportunity to examine the feet of great numbers of supposedly normal young men was not to be overlooked. In confirmation of one of Dr. Crane's contentions I may tell you that I almost never saw a foot which did not present more or less extensive shoe distortions. Again among the first 780 persons examined I absolutely rejected 33% for defective feet.

Now about normal feet. It seems to me there can be no fixed standard of perfection, no normal deviations from which must be regarded as abnormal. From my own observations and from what I have been able to learn by studying the photographs of wild people which friends who had traveled in the Orient and elsewhere have brought me, I have seemed to be able to differentiate three primary types of foot; the relatively narrow high arched foot of the Caucasian, the expanded snow shoe (really sand shoe) type of foot of the desert dwellers, that is, of the Semitic peoples, and the Negro or prehensile manipulate foot. This last I have seen only in pictures. It may be that the first two types are age long functional adaptations of the third; evolved from it under different environments.

It has been my experience that modern city life produces foot troubles most often among persons of Semitic extraction. This judging from their conformation is what one would naturally expect. Again among feet of the same type there are conceivable variations of height or depression of the arch, variations of pitch, of elasticity, of flexibility, and so on, which are still within the bounds of what might properly be classed as normal.

Returning now to the foot which causes painful symptoms, that is the subjectively abnormal foot, we note almost at once that there is no necessary relation between the height or depression of the arch, or for that matter of any other objective distortion, and the subjective symptoms which a foot may present. I think reports of two of my cases will illustrate the importance of this observation.

A young man was referred to me by his father whom I had relieved of some foot disturbances. The son was having trouble with plates which had been prescribed for him by an orthopedic surgeon of eminence. His feet were very, very flat, nevertheless he said he had never felt any discomfort

whatsoever nor been in any way aware of this defect till he had attended one of the universities. Here the physical director had uncovered his pedal imperfections and he was referred forthwith to the orthopedic luminary. Plates were then applied with the unfortunate result described. I threw away his plates and had appropriate shoes made for him and "he lived happily ever afterward."

Case II might be called the reverse of case I. A rather young lady came to me wearing exceedingly high metal plates of what is known as the square type. By a singular coincidence they happened to have been prescribed by the same surgeon. Instead of being low her arches were remarkably high. The plates had been raised from time to time during the four years she had been wearing them until, when she came to me, the patient had sustained severe pressure atrophy of practically all of the intrinsic muscles of the foot which was now balanced insecurely upon the apex of the plate's curve. Here was a foot beautiful to look upon but functionally all but useless. Proper shoes, massage, and appropriate exercises gradually effected a cure in this case.

Dr. Crane quoted Drs. Dane, Osgood and others as to the importance of the shape of the cuboid and of its relation to the other bones of the foot. I do not question its importance, though I doubt that we are wise in singling out any one element in the complicated mechanics of the foot for special attention.

It is barely possible that some of you may recall a paper I read once on "weak foot" and in which I quoted Bradford and Hake at some length. These gentlemen directed attention to a procession of osseous tubercles upon the under surfaces of the bones comprising the anterior pillar of the inner longitudinal arch. They showed with apparent mathematical and anatomic exactness that by flexing the great toe, a backward thrust might be exerted by the first metatarsal bone upon the first cuneiform and if the latter were held rotated outward by the pull of the tibialis anticus, this anterior metatarsal thrust would be transmitted through the internal cuneiform to the scaphoid. As a consequence the scaphoid would be crowded against the head of the astragalus and thus prevent this bone from rotating inward and downward and descending from its seat on the back, that is the upper surface, of the os calcis. I showed a plate by which all of these thrusts could in theory be accomplished. But later on I discovered that Dr. Whitman, also a prominent authority on weak foot, paid no special attention either to the cuboid, to the cuneiform or to any of their relations. This writer besides a proper shoe devised a special plate and stopped only to show that it protected, at either side of the foot, the transverse tarsal joint. Now all of these luminous ones cured most of their patients, consequently all of them must have been essentially right. If therefore points of contact in their various treatments could be discovered one would be justified in ascribing to such contact the first place in the care of defective feet. A comparison of the methods will show two such points of agreement; 1, appropriate shoeing or muscle building.

I really believe that the explanation of the conditions I have already referred to may be found in the presence or lack of an adequate musculature. A distorted foot will be symptomless if the musculature be strong enough to compensate for the mechanical defect and a perfectly shaped foot will be painful if there be a muscular insufficiency. Finally I believe that this is frequently referable to some constitutional depression or remote infection. Your patient may need a tonic or his tonsils seen to more than an arch supporter.

Because it supports this contention permit me in closing to report briefly the following failure: A lady weighing 193 lbs. who had not found relief elsewhere was brought to me by a patient. I began with massage, the Shaffer stretching machine, resistance exercises and as nearly correct a shoe as her foot would tolerate. Within three weeks she was able to go all over the golf links without discomfort. Thinking that if she could only get rid of 40 or 50 lbs. the foot would be permanent, I sent her to an eminent "internist" with the request that he reduce her. His reply was that she had a pretty big thyroid and the outlook was not encouraging; however, he would do his best. She began to lose weight rapidly, but the treatment so upset her nutritive processes that the poor lady went all to pieces and the first part of her to break down was the hard-earned muscular compensation in her feet. Given such a case again I should try to build her foot muscles up to take care of her weight. I should not try to pull the latter down to meet the limitations of her foot muscles.

Dr. Leonard Ely: Dr. Crane's remarks about the total depravity of shoemakers I agree with absolutely. The patients I have succeeded in inducing to adopt some rational form of foot wear may, if they have the means to have their shoes made to order, improve; they will tolerate the ugly shoe until the pain leaves them and no longer. It has been a source of despair to me. I have found a few fairly rational models of shoes which I recommend to people, but in every new place I move to I have to go to the shoemaker and tell him that he is to make shoes for my patients! If I go and talk to him, and whittle out a last until it pleases me, he will sometimes make the shoe as I ordered it. Every shoemaker knows more than any doctor! It is only the prospect of an immediate fee which will induce him to carry out instructions; and one cannot blame him. He is no philanthropist. He is in business to sell shoes, and if people refuse to buy well-shaped shoes, he will not keep them in stock. The standards of beauty are past finding out. To my mind a shoe that is built to the proper foot is a thing of beauty; one that is not, is ugly; but people will wear pointed shoes and high heels unless their feet cause them great suffering.

Dr. J. Rosenstirn: I would never have spoken to this somewhat accentuated specialistic subject if Dr. Rixford had not declared that no good comes from supporting the arch. He based his opinion on personal experience and the same experience prompts me to differ with him. I have suffered intensely from a breaking down of my anterior or transverse arch, and the moment I put a support in my shoe I was relieved. So you see that doctors even disagree in the result of remedies of their own ills, but I wanted to give my own experience in confirmation of those views that sensible support of the arch will do good, provided always the diagnosis is correct. In my own case I gained complete relief after the use of the appliance and, as Dr. Watkins stated of his patients, have lived happily ever since, with gratifying anticipation of a very much prolonged further happy existence.

SOCIETY REPORT PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

During the month of March, 1914, the following meetings were held:

Medical Section, Tuesday, March 3.

1. Tests of Liver Function. Thomas Addis.
2. The Cirrhoses of the Liver. J. V. Cooke.

3. Clinical Aspects of Liver Diseases, with Differential Diagnosis. R. H. Harbaugh. Discussed by H. P. Hill, Woods Hutchinson, W. Ophuls, J. H. Barbat, G. E. Ebright, L. Eloeser and W. T. Cummins.

4. The Sanitation of Swimming Baths. W. H. Kellogg.

General Meeting, Tuesday, March 10.

1. The Listerian Epoch, with Recollections. Chas. G. Levison.

2. Personal Reminiscences of the Transition Period in Surgery—the Listerian Era. Martin Regensburger.

3. The Extension of Vaccination to the Spanish Possessions, with Exhibit of Jenner's Letter regarding it. P. K. Brown.

4. George Chismore. D. W. Montgomery.

Surgical Section, Tuesday, March 17.

The following cases were shown by Stanley Stillman:

1. Cleft Palate and Hare Lip in Infant 3 months old.

2. Chondrosarcoma with Resection of Upper Jaw.

3. Partial Rhinoplasty for Cancer of Nose.

4. Plastic following Removal of Carcinoma of Buccal Mucous Membrane.

5. Case of Oxycephalus, previously operated for decompression. Osteoplasty and Transplant from Tibia.

Eye, Ear, Nose and Throat Section, Tuesday, March 24.

Exhibited microscopical sections of two cases of sarcoma of the nose: one a giant celled sarcoma and the other a chondro-sarcoma. H. B. Graham.

Two cases of supposed intracranial tumor. W. F. Schaller.

Case 1. A Finn, age 34. Family history negative. Negative Wassermann and Noguchi. Parietal headaches for two years, six months before, epileptic attacks. Intelligence normal. Anosmia in left side; percussion tenderness on left side. Articulate speech normal, but certain sensory speech disturbance suggestive of slight sensory aphasia. X-ray showed in rt. posterior fossa a triangular area of increased density, at the apex of which is an area of decreased density. Cranial nerves intact. On first examination no decrease of fields of vision, but in course of the illness there was a marked sudden decrease. No tumor reaction on turning, cochlear and vestibular reactions normal. On the day before operation, slight horizontal nystagmus to the right on looking to the right. On first examination there was a choked disc of three diopters elevation which increased to nine diopters before operation. There was slight vomiting before and after operation, but not serious.

Diagnosis: Probable left temporal tumor. At operation left temporal fossa normal. Right posterior fossa opened and marked increase of intracranial pressure found. Following operation the choked disc was one-half the former elevation, headaches present, nystagmus to the right persisted, corneal reflex on the right decreased.

Case 2. Bohemian, age 47. History of syphilis and alcohol. Frontal headaches for ten years at intervals, loss of memory, decreasing mentality; no excitement or depression, no tendency to joke. Percussion tenderness in frontal region. Ataxia and Romberg present, both variable. Left hand and foot slightly paretic. Slight left facial paresis. Sensibility hard to test. No cochlear or vestibular abnormalities. Marked tumor reaction on turning. Vision and fundi normal until immediately before operation a commencing neuro-retinitis in left eye. Serological tests—both blood and spinal—negative. A stereoscopic X-ray gives a triangular area of density at the base of anterior fossa at left of median line.

Diagnosis: Probable frontal tumor on left side. At operation nothing abnormal found. There was

a post-operative increase in optic neuritis and a pronounced aphasia.

Autopsy Report, April 3: Large tumor of the tinea choreoidea extending into the third ventricle, 7 cm. ant. post. measurement by 6 cm. in breadth posteriorly. The optic nerves, especially the left are markedly compressed as is also the corpora quadrigemina. The cerebellum is free.

In the discussion Wintermute related two cases of parietal tumor seen when tumor reaction was present. He stated that the reaction is not present in tumors of the posterior fossa.

Barkan stated that recent work had discredited the value of the interlacing of the fields of vision as a diagnostic point. The acute increase in the choked disc in Case 1 pointed to pressure below the tentorium.

K. Pischel suggested the use of a tonometer to make the estimate of intracranial pressure more exact.

A. Baer stated that Barany considers the anosmia the most important differential point between cerebellar tumors and those anterior to the cerebellum.

G. P. Wintermute exhibited a case of lues of the larynx of two years duration, in which there was an extensive web formation with tolerably normal vocal cord action.

H. Y. McNaught. Case of unilateral deafness of congenital luetic origin.

G. W. Caldwell exhibited a rare case of ocular nystagmus. Boy 18, had always seen well. In childhood his companions had remarked about his eye motions. No anomalies of fundus or anterior chamber. Nystagmus stops on convergence and accommodation, vision normal, no color blindness. There is a negative Wassermann. Thyroid slightly enlarged.

H. Barkan discussed this case at length, giving the literature of published cases.

G. P. Wintermute suggested that the fact that the nystagmus does not disappear in closing the eyes strongly suggests a central origin, for an ocular nystagmus is due to a retinal irritability and closing out the light causes it to disappear.

Urological Section, Tuesday, March 31.

1. An Interesting Case of Misplaced Kidney. S. O. Beasley. Discussed by R. L. Rigdon, J. T. Watkins and M. Krotoszyn.

2. A Case of Atonic Bladder. M. Silverberg.

3. The Comparative Value of Modern Functional Kidney Tests. W. E. Stevens. Discussed by M. Krotoszyn, J. J. Hogan and R. L. Rigdon.

4. Exhibition of Specimen of Urinary Calculus. Henry Meyer.

SAN JOAQUIN COUNTY.

The regular monthly meeting of the San Joaquin County Medical Society was held at the residence of Dr. Barton J. Powell Friday evening, February 27. The following members were present: Drs. W. J. Backus, J. D. Dameron, S. F. Priestly, S. P. Tuggle, H. N. Cross, J. T. Davison, Minerva Goodman, Hudson Smythe, R. R. Hammond, L. R. Johnson, F. P. Clark, Mary Taylor, H. C. Peterson, Margaret Smyth, C. R. Harry, S. E. Latta, W. F. Priestly, C. F. English, Barton J. Powell, Dewey R. Powell, and R. T. McGurk, with Dr. Thomas W. Huntington of San Francisco as guest.

The minutes of the last regular meeting and the special meeting held February 13 were read and approved. The committee on admissions reported favorably on the names of Drs. Lewis, Posey, Gould and Cashatt and they were declared members of the society. The name of Dr. Bissell of Ripon was placed in the hands of the committee on admissions.

The president then called upon Dr. Huntington to read his paper on "The Surgical Treatment of Uncomplicated Tuberculous Bone Foci." The paper was intensely interesting, being a résumé of

the various forms of treatment with their merits and demerits that have been proposed for the last half century, and giving the society the benefit of the final conclusions of an expert. Dr. Huntington also gave a brief outline in his summary of his own plan of treatment of uncomplicated tuberculous bone foci.

The discussion was opened by Dr. Dameron, who enumerated several cases in which he had successfully used Dr. Huntington's plan of treatment, and further remarks were made by Drs. Powell, Harry, Hammond and Dozier.

The question of fees offered by the casualty companies was again brought up, and the resolutions of the committee appointed at a previous meeting were read and accepted. After the meeting had adjourned, the members were invited by Dr. Powell to partake of refreshments.

R. T. McGURK, Secretary.

SONOMA COUNTY.

Resolutions passed by the Sonoma County Medical Society, March 12, 1914:

Whereas, The state of California has passed an act known as the Boynton Act, whereby it is the intention of the state to provide for the care and treatment of all persons who are engaged in the various industrial pursuits, and who may be injured while so engaged; and

Whereas, The state has caused to be formed a commission for the enforcement of said act; and

Whereas, Said commission has formulated certain rules and regulations for the application of said act and have fixed a schedule of fees to be paid for medical and surgical services rendered under said act, which they believe to be as liberal as their present financial condition will justify; and

Whereas, Said act was passed for the humane purpose of caring for the unfortunates who are engaged in the several industrial pursuits as wage earners and whose income is not always adequate to defray the regular household expenses, the education of their children and the misfortunes of sickness, and as conducted by the state is in no way for other than a humane purpose; now therefore be it

Resolved, That we, as members of the medical profession of California and of the Sonoma County Medical Society will assist in carrying out the object of this act by rendering service to any person injured while engaged in the pursuit of his regular duties and coming under the jurisdiction of this act.

That no member of this society shall enter into any written contract with any insurance company but shall be eligible to do such work, provided the remittance shall be equal to that paid by the State Insurance Commission.

That it is the opinion of this society that every injured person be free to select his own physician and we respectfully ask the medical profession of California to use their efforts to have any restriction to the contrary repealed.

S. S. BOGLE,
S. Z. PEOPLES,
W. C. SHIPLEY,
J. W. SEAWELL,
W. J. KERR,
J. W. SCAMELL,
A. R. HOWARD,
Committee.

PACIFIC COAST OTO-OPTHALMOLOGICAL SOCIETY.

To the Editor of the State Journal: We would be pleased to have you announce in the next issue of the California State Journal of Medicine the coming meeting of this society in Seattle, July 1, 2 and 3, 1914, and particularly the fact that Colonel Robt. H. Elliot of London, England, formerly of the Indian Medical Service, Superintendent

dent of the Government Ophthalmic Hospital of Madras, and Professor of Ophthalmology in the Medical College, Madras, India, will be present as guest of the Society. Colonel Elliot will deliver an address and will demonstrate his operative methods including his trephining operation for glaucoma.

Other well-known surgeons will be in attendance and a very successful meeting is assured. The officers and committees of the Society extend a cordial invitation to all Ophthalmologists and Oto-Laryngologists to attend the Seattle session. The time is during the most beautiful part of the delightful summer season in the Puget Sound country.

The territory embraced by the membership of the Pacific Coast Oto-Ophthalmological Society includes the states west of the Rocky Mountains and British Columbia. At the last meeting held in Portland, Oregon, in July, 1913, the program included a paper by Prof. Ernst Fuchs of Vienna. The meeting was most profitable and very enjoyable.

We beg to suggest that in the announcement you give due prominence to Colonel Elliot's coming as this will undoubtedly interest many, both those who had the pleasure of seeing him during his recent visit to this country and those who were unable to see him.

Thanking you in advance for the courtesy, I am,

Yours very truly,
WALTER K. SEELYE,
Chairman Program Committee.

BOOK REVIEWS

"Skin and Venereal Diseases." By W. L. Baum and H. N. Moyer. Practical Medicine Series. 1913. Vol. 9. Published by Year Book Publishing Co., Chicago. 1913. Price, \$1.50.

An interesting collection of things little out of the ordinary. It is well named miscellaneous and is well worth reading in a miscellaneous mood. It is full of surprises and is food for unusual and changeable thoughts. It contains many good suggestions as to treatment of skin and venereal diseases and many good points of general interest, all of which are placed before the reader in an agreeable style.

T. D. C.

"Blood Pressure From the Clinical Standpoint." By Francis Ashley Faught, M. D., of the Medico-Chirurgical College, Philadelphia. Octavo of 281 pages, illustrated. Philadelphia and London: W. B. Saunders Company. 1913. Price, \$3.00 net.

The author has brought together a large number of interesting and important facts on such subjects as the relation of blood pressure determinations to the diagnosis, prognosis and treatment of arterial, cardiac, and renal disorders and of infectious diseases; blood pressure in obstetric practice, in surgery, and in life insurance. Many references to the original literature are given. Important contributions, however, have been omitted; and the numerous and extensive quotations and abstracts included in the text do not show the exercise of the proper amount of criticism. The part devoted to physiology is below the standard which should be required for the use of high school students. It includes many statements as profound and exact as the following: "A normally acting circulation is shown by a normal blood pressure, which by virtue of being normal, shows that the heart action and the distribution of blood must be taking place in a normal manner." E. S. K.

"Principles of Surgery." By W. A. Bryan, A. M., M. D., Professor of Surgery and Clinical Surgery at Vanderbilt University, Nashville, Tennessee. Octavo of 677 pages with 224 original illustrations. Philadelphia and Lon-

don: W. B. Saunders Company. 1913. Cloth, \$4.00 net.

Professor Bryan in this volume has given a most valuable exposition of the principles that form the basis of surgical diagnosis and treatment. While the book will probably find its most valuable application as a safe, moderate and conservative guide for the student, its perusal cannot fail to be of interest and benefit to the practicing physician and surgeon. The especial point of merit is the wide employment of the rational pathology underlying the tissue changes in disease and repair. The book shows evidences of being written by a man who loves to teach. It is modern in every way, yet conservative, and with the exception of a few typographical errors shows great care in its make up. G. H. T.

"Nervous and Mental Diseases." By H. T. Patrick and P. Bassoe. Practical Medicine Series. 1913. Vol. X. Published by Year Book Pub. Co., Chicago. 1913. Price, \$1.50.

This little volume of 239 pages contains, in condensed form, the important neurological contributions of 1913. Only subjects of practical interest to the specialist and busy practitioner are considered. For example, the detailed accounts of the New York and Texas epidemics of cerebrospinal meningitis are taken up at length with symptomatology, complications and treatment.

All of the newer neurological data for making more exact and complete diagnoses are given due consideration. The chapter on aphasia is of especial value, in that, Dejerine, in the last International Congress gave his results of seven years' study on this subject and has suggested a new classification for these disturbances.

In fact, the volume is full of important facts and suggestions, and is one of the most valuable of the recent neurological publications of its kind. J. M. W.

"The Clinics of John B. Murphy, M. D." at Mercy Hospital, Chicago. Volume III, Number 1. Octavo of 190 pages and 91 illustrations. Philadelphia and London: W. B. Saunders Company. 1914. Published bi-monthly. Price per year: Paper, \$8; cloth, \$12.

Contents:

- Fracture of Internal and External Malleolus in a Line with the Tibio-Astragaloïd Articulation.
- Ankylosis of Hip due to "Lipping" of the Rim of the Acetabulum; a Collar of Bone on the Neck of the Femur; Cheilotomy; Arthroplasty.
- Complete Bone Ankylosis Between Tibia and Patella and Femur; Arthroplasty; Acute Metastatic Arthritis.
- Tuberculosis of the Testicle; Orchidectomy with Implantation of Paraffin Substitute for Testis.
- Charcot Ankle; Removal of Articulation and Nailing of Astragalus to Tibia.
- Lord Lister and Antiseptic Surgery.
- Nitrous Oxid Anæsthesia.
- Metastatic Infections.
- Gastric Ulcer and Gastric Carcinoma.
- Ununited Fracture of the Ulna. Transplantation of Bone from Tibia.
- Luxation of the Patella and Fracture of the Internal Semilunar Cartilage; Description of Dr. Murphy's Operation for Luxation of the Patella.
- Laminectomy for Traumatic Compression of the Spinal Cord.
- Removal of Enlarged and Dilated Stump of Gall-bladder Following a Previous Operation with Secondary Perforation of its Wall by Three Calculi.
- Radical Operation for Carcinoma of the Breast, with Description of Dr. Murphy's Special Technic.

"History of Medicine, With Medical Chronology, Bibliographic Data, and Test Questions." By

Fielding H. Garrison, A. B., M. D., Principal Assistant Librarian, Surgeon General's Office, Washington, D. C., Editor of the "Index Medicus," Octavo of 763 pages, many portraits. W. B. Saunders Company, Philadelphia and London. 1913. Cloth, \$6.00 net; half morocco, \$7.50 net.

Into one volume has been crowded a veritable storehouse of facts beginning with the first trace of medicine in the time of savage man with its belief in the supernatural agencies and evil spirits as cause of disease, to the present year of scientific medicine.

In chronological order we pass through the dawn of Babylonian, Egyptian, Oriental, Greek, Mohammedan civilization through the medieval period and finally the 14th to the 20th century each 100 years being treated separately.

The association of each century of medicine with the social and cultural aspects of the time add greatly to the interest and understanding of the book. The author has for the most part taken the attitude of spectator and has left the large number of important facts and lives of history making men speak for themselves. Thus, there is plenty of stimulus every few pages to delve deeper into the subject than the author is able to do in the space allowed him—and the many references show the writer has hoped for this very result. It is a splendid book not only for the physician's library but the kind of book that will solve the problem of what to give to a lawyer friend or earnest student in any line of work when the occasion arises.

The book does not presume to displace the exhaustive histories of medicine as written by Haeser or Neuberger with their philosophy and original researches, but to rather place before the student an interesting array of facts, carefully collected and scientifically arranged for ready reference and easy comprehension. M. I. J.

"Marriage and Genetics." By Charles A. Reed, M. D., F. C. S.

Is a work of somewhat unequal character. The writer in the opening paragraphs most truly states the importance of diffusing a knowledge of the laws of heredity and their bearing on the future welfare and even the present status of the race. The work is offered with a view of teaching not the physician or the student but the general public. The present application of existing knowledge to the practical problems presented by our social conditions in relation to marriage. To this end the book is divided into two parts: the first containing general statements of the work of Galton, Weismann, Mendel and other students of genetics. This, on the whole, is done in a simple and accurate manner, although as a readable book interesting to the average man, there is not a little to be desired from the literary standpoint. So far as the scientific accuracy of the statements are concerned exception might be taken to many. For example, to classify alcoholism, pauperism and criminality among mendelian characters is an extension of his principles that is scarcely warranted by existing knowledge. Similarly the statement on page 71 that the physical, mental and moral degradation of the average Mohammedan population is to be ascribed to the system of polygamy and child marriage, is without the proper basis, seeing that the mass of all populations are monogamous in practice, whatever law may allow.

The second part of the book on applied eugenics seeks to give direct data for determining the fitness for marriage of applicants for licenses or for helping the same in forming a judgment on the desirability of entering into the married state. To this end supposedly inheritable conditions and diseases are described and assorted as eugenic and agenic (desirable and undesirable). We cannot help feeling that the puzzled youth and the blushing

ing maiden who seek assistance in the determination of their fate, from this mixed assortment of knowledge, are not likely to reach a determination that will necessarily be helpful to the race. Nevertheless this little book contains a large amount of interesting and useful information which is not always as well known by even the medical profession as it should be.

H. D'A. P.

"Diseases of the Digestive Canal." By Paul Cohnheim. From the second German edition. Edited and translated by Dudley Fulton. Third edition. Published by J. B. Lippincott Company, Philadelphia and London. 1914. Price, \$4.00.

This is an excellent book; it is clearly written and concise. No one knows better than Dr. Fulton that the theories of disordered digestion are undergoing a rapid revision and that the apparently settled problems of yesterday are still in the process of change, but what is stable and firmly established, is well described in this book.

Much helpful advice is given in history taking, and in preliminary remarks on diagnosis. For the sake of hitting an antiquated fallacy, let me quote the following:

"Significance of coating on the tongue: Most patients that suffer from chronic dyspepsia attach a great deal of importance to the appearance of their tongue. Many physicians also think they are able to form a conclusion as to the condition of the stomach from the thickness of the coating on the tongue. This is an error. A coated tongue and affections of the stomach are only indirectly related. The tongue is always coated if the patient does not chew his food, or if he masticates hurriedly; the reason for this being that mastication mechanically cleanses the tongue. For this reason the tongue is always heavily coated if there is no appetite, as in the case of acute diseases, while in chronic diseases, when the patient is masticating solids several times a day, the tongue will show scarcely any coating, though he may be suffering from either a functional or an organic disease of the stomach."*

For this and similar good counsel, the book is hereby heartily recommended to doctors in general.

S. T. P.

* Mueller and Fuchs were the first to make the observation that 62 per cent. of the healthy persons that they examined had coated tongues; and that caries of the teeth, stomatitis or catarrhal pharyngitis, etc., existed in 66 per cent. of young persons whose tongues were coated.

"Dental Electro-therapeutics." By Ernest Sturridge, L. D. S., Eng., D. D. S., Fellow of the Royal Society of Medicine, Member of the British Dental Association, London, Eng. 12mo, 318 pages, with 154 engravings. Cloth, \$2.75 net. Lea & Febiger, Philadelphia and New York. 1914.

The publication of this little volume is very timely as there is a rapidly growing demand in the dental profession for more precise knowledge upon the subject of electro-therapeutics in dental surgery.

The author recognizes the fact that the average dentist has but little knowledge of the principles which underlie the successful employment of electricity as a therapeutic agent, he has therefore endeavored to place before the profession in a concise and reliable form the fundamental principles with which the dentist must be familiar in order to employ with intelligence and benefit to his patient this (at present) little used but very valuable therapeutic agent.

The principal object of the book as stated by the author in his preface "is especially intended to bring forward the value of ionic medication in the treatment of periodontal diseases and everything pertaining to ions and their uses in dental treatment has been carefully detailed, etc., etc."

The book is divided into two sections or parts.

The first deals with electro-physics as it pertains to electro-medicine, physiology and its therapeutics as applied to dentistry and the various kinds of apparatus and appliances necessary for its proper exhibition and application. The second part deals with electro-therapeutics in the treatment of various dental diseases and abnormal oral conditions, particularly with the periodontal membrane, pyorrhea alveolaris, dental-alveolar abscess, devitalized teeth, pulpless teeth, and septic conditions of the mouth and gums.

The teaching along these lines is sound and conservative and will appeal to those dentists who are familiar with the therapeutic benefits to be derived from an intelligent use of the various electric currents in the treatment of these diseased conditions of the oral cavity.

We have, however, looked in vain for some mention of the great benefit to be derived from the application of the continued current in the treatment of hyperaemia and congestion of the dental pulp and in relieving odontalgia due to irritations not septic in their nature. This is an omission to be regretted and it is hoped that in a second edition of the book this phase of the subject may receive the attention which its demonstrated value merits.

With this exception the book is heartily commendable and it should find a place in the working library of every progressive dentist. The press work and the illustrations are fully up to the usual high standard of the publishers.

J. G. M.

"Stammering and Cognate Defects of Speech." By C. S. Bluemel, Boulder Creek, Colorado. Published by G. E. Stechert & Co., New York. 1913. Two volumes.

It is so many years since anything has appeared in English of so pretentious a nature as the present work, of 600 pages on the subject of stammering, that the reviewer acknowledges to a distinct sense of disappointment, that after several weeks of hard study, he was unable to extract anything of value out of the redundant verbosity of this poorly digested rehash of everything published on the subject—scientific or otherwise,—since the time of Schulthess in the early part of the nineteenth century.

The first volume is taken up entirely with a very elementary and incomplete review of the principles of psychology, for which the reader could very much better be referred to any of the standard text books on the subject. Buried in the midst of these text-book principles, the author has concealed what is evidently the prime motive for his monumental work. As he explains it, "The theory has been developed in large part as the result of introspective evidence,—evidence as indispensable as it was uncoveted," whatever this last phrase may mean.

On page 187, vol. 1, the following paragraph occurs: "Now, since the stammer's difficulty is to produce the vowel, and is not to produce voice per se, it is evident that his difficulty must be to produce the vowel-color or vowel-quality. The stammerer's difficulty is transient auditory amnesia: he is unable to recall the sound image of the vowel that he wishes to enunciate. This, then, is the thesis of the present monograph."

As a matter of fact, some very able men, amongst whom is Gutzmann, are not at all certain that the difficulty is in producing the vowel; but allowing the author to retain for the purpose of supporting his theory this disputed fact—the keystone of this whole argument,—the reviewer looks in vain, in the subsequent pages, for any information which would tend to show how one could make a practical application of this discovery that the stammerer is an "audito-motuer."

The second volume reminds one of an enlarged number of "Public Opinion." Mosaiced together in a most ingenious fashion, are extracts from

every form of treatment known to man. The good and bad are mixed in indescribable confusion. The caustic comments of the author on all of the methods, the constant omission of names where credit should be given, would leave any reader, unacquainted with the literature, under the impression that there were no legitimate speech experts engaged in a really scientific study of this subject.

Men of international reputation such as Gutzmann, Fröschels, Liebmann, and in our own country Hudson Makuen, are neither discussed, nor are their methods analyzed. In conclusion he gives the following sage advice, which is comparable to the milligram of radium which the tired worker extracts from a ton of pitchblende. On page 306 we find this remark: "If such amnesia appears to be present the child should be told to think how the words are going to sound."

At the end of the second volume he has appended a glossary of psychological terms which he explains, will enable youthful stutterers to better understand the meanings used in volume 1. One of these definitions seems very apropos, page 326: "Gold brick, a worthless object represented as of great value and sold for a large sum of money." The price of the present work is \$5.00. H. H.

DEPARTMENT OF PHARMACY AND CHEMISTRY.

Edited by FRED I. LACKENBACH.

(This Department will be pleased to supply information concerning products passed or rejected by the Council on Pharmacy and Chemistry of the A. M. A., or submit queries to the Council when information is not available.)

Dr. K. P. enquires into the nature of the various epinephrine preparations offered and the brand designations. "New and Non-official Remedies," 1914, describes the following:

EPINEPHRINE AND EPINEPHRINE PREPARATIONS.

Epinephrine.—Epinephrine is obtained from the suprarenal gland of the sheep or other animal.

Actions and Uses.—Epinephrine acts peripherally on a variety of structures, probably by stimulating the sympathetic nerve endings. Its most important therapeutic actions consist in a constriction of the blood vessels, with consequent high rise of blood-pressure; a stimulation of the vagus center with slowing of the heart, and a direct stimulant and tonic effect on the heart muscle, similar to digitalis. Large doses also cause glycosuria. Continued administration of large doses leads to atherosclerosis. The effect of a single dose is very fleeting. It is not irritant. The effects are seen on local application and intravenous and intramuscular injection. When given to animals, by mouth or hypodermically, moderate doses have almost no action.

Dilute watery solutions rapidly lose their strength, the deterioration being accompanied by a reddish or brownish discoloration.

The alkaloid is chiefly used locally for its vasoconstrictor action, in hemorrhage, and in catarrhal and congestive conditions. It is said to cut short the asthmatic paroxysm (being used by spraying the larynx and by hypodermic injections). Intravenous injections are effective in shock and anesthesia accidents (care being taken not to give an overdose). It has also been recommended in heart disease, Addison's disease, etc., but opinions are divided as to the benefits to be expected from oral administration.

The vasoconstrictor action of epinephrine is used to intensify and prolong the anesthetic effect of local anesthetics by retarding the circulation in the affected part and thus hindering the dilution of the anesthetic agent by too rapid absorption into the general blood-stream.

Dosage.—From 0.3 to 2.0 Cc. (5 to 30 minims) of a 1:1,000 solution every two or three hours. Hypodermically, 0.06 to 1 Cc. (1 to 15 minims) of

a 1:1,000 solution diluted with sterile water. Locally it is used in solution varying in strength from 1:15,000 to 1:1,000 for ordinary applications, in oily solution for sprays, in ointment for application to mucous membranes, such as the eye or the nose, where a slower but more lasting action is desired, and in suppositories. Since the alkaloid is insoluble, solutions in water should be made of some salt, but for the oily solutions the alkaloid itself should be employed.

Its incompatibilities are the same as those of other alkaloids. Its solutions should be kept tightly stoppered and protected from the light.

Proprietary Preparations:

Adnephrin.—The name used for epinephrine by F. Stearns & Co., Detroit, Mich.

Adrenalin.—The name used for epinephrine by Parke, Davis & Co., Detroit, Mich. It is prepared by the method of Takamine.

Supracapsulin.—The name used for epinephrine by the Cudahy Packing Co., South Omaha, Neb.

L-Suprarenin Synthetic.—L-suprarenin synthetic is epinephrine produced synthetically according to the method of Stoltz & Flaeber. Manufactured by Farbwerke, vorm. Meister, Lucius & Bruening, Hoechst a.M., Germany. (Farbwerke-Hoechst Co., New York.)

L-Suprarenin Synthetic Bitartrate.—L-suprarenin synthetic bitartrate is the acid tartrate of L-suprarenin synthetic. Manufactured by Farbwerke, vorm. Meister, Lucius & Bruening, Hoechst a.M., Germany. (Farbwerke-Hoechst Co., New York.)

Purified Extract of Adrenal Gland.—Mulford.—Purified extract of adrenal gland, Mulford, is an extract of the suprarenal gland, standardized physiologically by measuring its effect on blood-pressure and so adjusted as to correspond to the effect of 4 per cent, of purified epinephrine. It has therefore approximately four times the strength of desiccated suprarenal gland U. S. P.

Action and Uses.—See Epinephrine.

Suprarenal Liquid.—Liquid Suprarenalis (P. D. & Co.). Suprarenal liquid is an aqueous extract of suprarenal glands, preserved with 0.8 per cent. of chlorbutanol (chlorethane). Each Cc. (16 minims) of the solution represents 1 Gm. (15.4 grains) of the fresh glands.

Tyramine.—Tyramine is para-hydroxy-phenylethylamine hydrochloride.

Actions and Uses.—Taken internally or injected subcutaneously tyramine increases the blood pressure; for this reason it can be used in shock or collapse; it is also claimed to be valuable for producing post-partum contraction of the uterus. It is useless as a local hemostatic.

The action is similar to epinephrine, being weaker and slower, but lasting longer.

Manufactured by Burroughs Wellcome & Co., London, England, and New York.

DEATHS FOLLOWING INJECTION OF NEOSALVARSAN IN LOS ANGELES.

Last week (the Journal, March 14, 1914, p. 861) we noted the deaths of seven patients in the Los Angeles County Hospital following intraspinal injection of neosalvarsan. At that time we stated that a fuller report would be published later. We have since received by wire from our special correspondent the following statements from Dr. C. H. Whitman, superintendent of the hospital, and Dr. A. T. Charlton, pathologist, which embody the substance of a report made by them to the Los Angeles County Board of Supervisors:

Statement of Dr. Whitman.

I herewith submit a report covering as nearly as is possible for me to do all of the circumstances and particulars appertaining to the fatalities which occurred at the County Hospital following the administration of salvarsanized serum to eight patients, all of whom were suffering from the effects

of syphilis in advanced stages of the disease. In some there was disease of the bones. Others were at advanced stages of locomotor ataxia in which portions of the spinal cord were degenerated. The Wassermann test, which is considered reliable, was made in each and every case. In addition, cell count of the cerebrospinal fluid and the butyric-acid test were made, each corroborating the clinical diagnosis of syphilis. Hence there can be no question as to the nature of the disease from which these patients suffered.

The diagnosis having been confirmed, the question of treatment was a matter of selection. In view of the facts that the older forms of treatment had proved ineffective in syphilitic cases in which the spinal cord was involved, and that neosalvarsan, which has been regarded as a specific in the earlier stages, had proved ineffective when administered by the blood or into muscular tissue, another recognized mode of procedure was adopted, namely, the intraspinal administration of salvarsanized serum. The technic of this method is somewhat complicated, but it is exact; that is, the quantity given to each person is definitely known, and according to reports from medical authorities this method is more effective than any other. In this connection, I desire to state that the Los Angeles County Hospital, instead of being an experimental station, as might be inferred from some published accounts concerning this unfortunate affair, is, in fact, although progressive, one of the most conservative of its kind, which is evidenced by the fact that the intraspinal method of using salvarsanized serum had been in use for at least a year in many medical centers throughout the country before being used in this institution, and medical reports seem to indicate that this method is becoming the method of choice by many physicians in the treatment of spinal syphilis. It follows, therefore, that the treatment here used was no experiment, and I desire at this time to emphasize the fact that no experimental treatment on human beings has been conducted in this institution since my incumbency, nor will any be tolerated.

March 7, after consultation with several physicians, all members of the attending staff, Dr. A. T. Charlton directed the administration of salvarsanized serum to eight patients in the County Hospital. The serum was prepared by himself, according to authority. As all accounts so far published in the local press concerning the preparation and administration of this remedy to these patients are more or less inaccurate, I submit herewith attached, in detail, Dr. Charlton's statement concerning the technic followed by him throughout the whole procedure. I desire to state further that from the time my attention was called to these cases until the present, I have left nothing undone that would shed light on the cause of this tragedy. I personally drove to Pasadena and got the coroner and, at his request, went for the county necropsy surgeon. I also called in consultation half a dozen or more prominent members of the profession, whose knowledge and advice I thought might be of service to us in this emergency. I personally telephoned to all of the morning newspapers, giving them the first information they had of the affair, and I have practically placed myself and the records of the hospital at the disposal of the public through the press and county officials ever since. I will state that the embalming of these bodies prior to necropsy was not done at the County Hospital, or by any one connected with the hospital, but was done without our knowledge after the coroner had removed the bodies from the hospital. It is only fair to the coroner to state that to my personal knowledge he was advised by six or more physicians that a necropsy would not reveal any characteristic lesions that would account for the deaths, and this opinion was substantiated by the necropsy. The necropsy, however, was justified since it revealed

syphilitic lesions in the lung, liver and spinal cord in a patient who had denied having syphilis, thus corroborating the clinical and laboratory diagnosis and justifying the antisyphilitic treatment.

The most plausible explanation of the cause of death in these cases is that oxidation had taken place in the neosalvarsan. This could have occurred through some defect in the glass container that was not apparent at the time the preparation was used.

In conclusion I desire to express our appreciation of the treatment accorded our County Hospital by the great mass of the public and the press in this unfortunate affair, and I can only repeat that there is nowhere more sorrow concerning this unfortunate outcome of what was intended to be for the best health interests of the deceased patients than there is among the house and attending staffs of the Los Angeles County Hospital.

Statement of Dr. Charlton.

Friday, March 6, between 9 and 11 a. m., I withdrew about 15 c.c. of blood from the veins of the arms of eight patients. From two others only about 6 c.c. of blood were obtained. As the amount of blood received from the latter two patients furnished an insufficient quantity of serum for the spinal treatment, I decided to make a dilution which would include eight spinal and two intravenous treatments, and this was done. Two ampules were used for this dilution. On account of the lapse of time, the intravenous treatment was not used. The blood was taken through sterile pipets and placed in sterile centrifuge tubes, and the serum separated from the fibrin and red cells. The serum, which was perfectly clear, was pipetted off to the amount of 5 c.c., and this was placed in a sterile glass-stoppered bottle. To this was added 1, 2 or 3 mg. of freshly dissolved neosalvarsan in sterile normal salt solution. Following this there were added to the preparation 8 c.c. of sterile normal salt solution, a sterile graduated all-glass syringe being used. This procedure was carried out absolutely with the serums from each of the eight patients separately. The preparations were then all placed in a water-bath at a temperature of 54 C. for half an hour. They were then placed in a refrigerator for twenty hours, each bottle labeled with the patient's name and the dosage for each.

Under the usual aseptic conditions from 3 to 7 c.c. of spinal fluid were drawn from each patient. Then from each individual bottle there was taken the diluted salvarsanized serum, a sterile graduated glass syringe being used, and with this syringe the contents were introduced through the same needle by which the spinal fluid was withdrawn.—Journal of the A. M. A., March 21, 1914.

BOARD OF MEDICAL EXAMINERS, CALIFORNIA, DEC., 1913, AND JAN., 1914, SESSIONS.

Passed Written Examination for Physicians and Surgeons.

Hahnemann Med. Coll. of the Pac., Calif.; (4, 25, 1913), 79.*

Oakland Coll. of Med. & Surg., Calif.; (5, 22, 1913), 79. Univ. of Calif., Med. Dept., Cal.; (5, 13, 1913), 87; (6, 10, 1913), 87.3.

Univ. of So. Calif., Coll. of P. & S. Med. Dept.; (6, 12, 1913), 93.7, 76.4*, 92.5.

Coll. of Med. & Surg., Ill.; (5, 14, 1909), 77*. Georgetown Univ., Med. Dept., Wash., D. C.; (6, 13, 1913), 84.4.

McGill Univ., Canada; (6, 6, 1913), 79.3.

Med. Coll. of Ind.; (4, 24, 1902), 89.

Hahnemann Med. Coll. of Philadelphia; (6, 6, 1912), 81.6.

Harvard Med. Sch., Mass.; (6, 28, 1911), 83.

Imperial First Higher Coll., Tokyo, Japan; (12, 27, 1870).

Granted on markings obtained in Aug., 1913, examination of the Board.

Rush Med. Coll., Ill.; (6, 17, 1913), 91.4.

Tufts Coll. Med. Sch., Mass.; (6, 20, 1903), 90.

Univ. of Melbourne, Australia; (6, 12, 1911), 93.4.

Univ. of Mich., Med. Dept.; (6, 18, 1903), 96.

Univ. of Texas, Med. Dept.; (5, 30, 1909), 91.3.

Univ. of Toronto, Canada; (5, 6, 1891), 100.

Wis. Coll. of P. & S.; (6, 28, 1903), 81.2.

Failed Written Examination for Physicians and Surgeons.

Coll. of Phys. & Surg., S. F.; (6, 8, 1911), 63.**

Hahnemann Med. Coll. of the Pac., Calif.; (4, 24, 1913), 71.4.

L. A. Coll. of Osteopathy, Calif.; (6, 7, 1913), 69.4; (6, 28, 1910), 68.*****
 Pac. Coll. of Osteopathy, Calif.; (6, 20, 1912), 72.
 Baltimore Med. Coll., Md.; (5, 30, 1913), 67.*
 Barnes Med. Coll., Mo.; (11, 16, 1911), 63.*
 Eclectic Med. Coll., Ohio; (5, 12, 1913), 67.*
 Ky. Sch. of Med., Ky.; (7, 14, 1906), 65.1.**
 Medico-Chirurgical Coll., Pa.; (6, 2, 1912), 69.5.
 Meharry Med. Coll., Tenn.; (4, 22, 1913), 36.
 Royal Univ. of Italy; (12, 18, 1903), 65.*****
 Royal Coll. of Phys. & Surg., Edinburgh and Glasgow, Scotland; (7, —, 1911), 68.4.*
 Royal Univ. of Leipzig, Germany (1894), and Coll. of Phys. & Surgs., S. F.; (7, 1, 1904), 68.
 St. Louis Coll. of P. & S. Mo.; (7, 1, 1910), 72.3.
 Willamette Med. Coll., Oreg.; (3, 30, 1904), 70.
 Wis. Coll. of Phys. & Surg., Wis.; (4, 30, 1902), 61.1.

Passed Written Examination for Drugless Practitioners.
 Am. Sch. of Osteopathy, Mo.; (6, 3, 1912), 77.
 L. A. Coll. of Osteopathy, Calif.; (6, 4, 1913), 77.
Failed Written Examination for Drugless Practitioners.
 Am. Sch. of Osteopathy, Mo.; (1, —, 1912), 41.
 L. A. Coll. of Osteopathy, Calif.; (6, 6, 1913), 67.5;* (6, 4, 1913), 64.
 Drugless Practitioner (no school), 65.
 Drugless Practitioner (no school), 70.**

* Taken before.

Passed by Oral Examination.

Forty-seven reciprocity applicants licensed in States other than California prior to August 1, 1901.

Certificates Granted to

120 reciprocity applicants licensed in States other than California, since August 1, 1901, and one honorably discharged U. S. surgeon.

New Licentiates—Medical Doctors.

Anderson, Axel E.; Anthony, L. A.; Atwood, J. B.; Baker, A. E.; Baker, Z. A.; Ballard, C.; Barham, F. F.; Barndt, M. A.; Bellwood, H. H.; Biddle, A. G.; Binford, N.; Black, E. C.; Blanchard, W. O.; Block, L.; Bolin, J. T.; Bolinger, H. J.; Bowers, C. H.; Bradway, E. H.; Brasfield, J. P.; Braunstein, J.; Brothers, H. N.; Brown, B. C. B.; Brown, J. T.; Brownfield, W. H.; Buffum, R. L.; Bullock, A. S.; Burger, T. O.; Burton, Jas.; Bushee, G. B.; Carmichael, A. B.; Carpenter, C. R.; Carpenter, P. H.; Cecil, A. B.; Church, W. G.; Clare, M. W.; Christensen, W. T.; Cleaver, J. H.; Cline, J. W.; Colbert, J. W.; Coltrin, F. D.; Commons, E. L.; Conerty, J. M.; Cooke, W. H.; Courtney, G. T.; Cowperthwaite, A. C.; Crecelius, H. A.; Crutcher, L. P.; Davis, C. C.; Dunn, J. T.; Dederer, I. C.; Dirks, C. B.; Dodge, F. I.; Dowdle, E. E.; Ely, L. W.; Egan, B. E.; Ermentrout, S. J.; Fleming, G. J.; Flanagan, E. E.; Floreth, O. P.; Forbes, H. S.; Franklin, J. W.; Freeborn, J. A.; Freedman, L. H.; Furst, O. J.; Galbraith, W. J.; Ghent, J. A.; Gill, A. F.; Girard, F. R.; Goodall, O. P.; Grundy, G. M.; Hanford, F. W.; Hanson, W. P.; Hargrave, H. G.; Harrah, O. M.; Harvey, R. W.; Henry, W. O.; Herbert, G. S.; Hergert, C. A.; Herrick, A. B.; Hill, A. L.; Hicks, J. R.; Hilliard, R.; Hoffmann, E. R.; Horn, W. L.; Hosmer, C. M.; Howes, C.; Hughes, J. F.; Huizinga, R.; Hurd, S. W.; Iber, C. H. I.; Jenkins, J. C.; Jesberg, S. H.; Jesse, Geo. McC.; Johnson, G. F.; Jones, E. F.; Joy, W. M.; Kauffmann, H. B.; Keeton, T. A.; King, H. R.; Kirschner, H. E.; Klutho, J. C.; Lancaster, J. S.; Linhart, L. R.; Long, W. H.; Lucas, W. P.; Lynch, D. A.; Macdonald, H. E.; McDowell, W. R.; McDermid, P.; McLeish, A. H.; Macpherson, J. F.; Major, R. H.; Mahan, C. A.; Merrow, L. M.; Mills, L. H.; Miner, D. O.; Miyata, Y.; Morse, A. H.; Murphy, F. W.; Musser, F. P.; Neff, J. M.; Newton, E. A.; Nolan, T. J.; Old, F. J. T.; Orr, J. T.; Peddicord, H.; Petr, F.; Pettig, H. H.; Pippino, R. H. F.; Platner, R. E.; Powell, C. F.; Pratt, J. P.; Radcliffe, W. M.; Ransom, C. W.; Ratte, H. F.; Reed, E. N.; Rice, A. L.; Richardson, C. H.; Rieger, F. F.; Roberts, E. K.; Robinson, J. H.; Rogers, A. M.; Rosister, E. W.; Rowe, M. J.; Rudgers, D. W.; Sanders, A.; Sandow, B. F.; Sawyer, F. W.; Schmidt, H. C.; Sewall, C. D.; Shirk, F. M.; Silbermann, C.; Singleton, W. T.; Slemmons, J. M.; Smith, C. S.; Smith, F. L.; Smith, J. J.; Stevens, C. E.; Stoddard, C. M.; Stoddard, C. L.; Stone, A. C.; Sutton, R. L.; Sweet, C. L.; Tebbetts, J. H.; Thompson, J. M.; Thudichum, C. L.; Titus, J. H.; Tobin, P. A.; Tower, O. I.; Traber, C. H.; Trinwith, T. H.; Turner, J. H.; Turner, G. B.; Vanderhoof, D. A.; Van Tine, C.; Watson, H. G.; Whitten, W. D.; Whiteaker, H.; White, G. S.; White, F. M.; Wilcox, W. S.; Williams, J. M.; Wright, H. W.; Worthington, M. H.; Winter, F. E.; Williamson, E. L.; Williamson, N. E.; Wylder, M. K.; Zaiser, H. E.

New Licentiates—Drugless Practitioners.
 Petheram, C. C.; Roop, E. D.

NEW MEMBERS.

Donnell, R. H., San Diego.
 Rudgers, D. W., San Diego.
 Harding, M. C., San Diego.
 Morgan, Jr., J. D., San Diego.
 Elliott, E. W., Turlock, Cal.
 Posey, A. C., Modesto.
 Stile, John, Alturas.
 Walters, Paul R., Dinuba.

Gibson, Alexander, Alturas.
 Ehle, H. B., Cedarville.
 Everett, E. D., Lakeview, Ore.
 Smith, E. H., Lakeview, Ore.
 Trachman, H. J., Santa Rosa.
 O'Brien, J. T., Petaluma.
 Lewis, E. G., Escalon, Cal.
 Marion, G. L., Daly City, Cal.
 Chapin, J. E., Redwood City.
 Keith, J. W., South San Francisco.
 Coleman, E. H., Sunnyvale, Cal.
 Blanchard, T. L., Campbell, Cal.
 Mosher, Celia D., Palo Alto, Cal.
 Cobb, C. D., Oakland, Cal.
 Schutz, M. H., Oakland, Cal.
 Tarter, A. P., Alameda.
 Van Nuys, R. G., Pleasanton.
 Cleland, H. O., Ukiah.
 Barnes, Jesse W., Gustine, Cal.
 Saphro, Elizabeth M., Los Angeles.
 Saphro, V. O., Los Angeles.
 Dirks, C. B., Eagle Rock, Cal.
 Sugarman, H., Los Angeles.
 Mordoff, Chas. E., El Monte, Cal.
 Mack, C. W., Agnew, Cal.
 Solgaard, E., San Bernardino.
 Emery, E. V., Porterville.
 Merrill, Edw. R., Santa Barbara.
 Wright, Harold W., Santa Barbara.
 Hosmer, C. M., San Diego.
 Scroggs, W. S., Richmond, Cal.
 Taylor, J. E., Richmond.
 Vestal, H., Richmond.
 Whitten, W. D., San Diego.
 Courtenay, G. T., San Diego.
 Block, Emil C., San Diego.
 Carrington, P. M., San Diego.
 Ransom, J. K., Napa.
 Thomason, Geo., Sanitarium.
 Broome, Wm. J., Alta.
 McCullough, F. E., Forest Hill, Cal.
 Mardis, B. A., San Francisco.
 Fabre-Rajotte, F., Sacramento.
 McDonnell, C. H., Sacramento.
 Morse, D. H., Hemet.
 Apple, W. W., El Centro.
 Standlee, C. E., Imperial.
 Moore, L. R., Imperial.
 Bossert, C. S., Brawley.
 Le Baron, Eugene, Brawley.
 West, Fred'k D., Beaumont.
 Lindsey, L. L., Brawley.
 McCombs, V. J., El Centro.
 Peterson, Fred W., El Centro.
 Abrons, Henry, Calistoga.
 Alumbaugh, F. W., Napa.
 Blodgett, W. L., Calistoga.
 Caldwell, C. B., Napa.
 Crane, H. W., Napa.
 Donnelly, E. F., Napa.
 Klingerman, G. E., Sanitarium, Cal.
 McRae, D. M., Veterans' Home, Cal.
 Ogden, G. W., Napa, Cal.

DEAD.

Alexander, E. B., Los Angeles.
 Stuart, A. McG., Santa Rosa.
 Sulcer, A. A., Riverside.
 Gallion, Thos. W., Mariposa.
 Parker, W. H., Ocean Park, Cal.
 Potter, Sam'l O. L., San Francisco.
 Wright, Alvin H., San Francisco.
 Cook, Channing S., San Francisco.
 Coffman, N. B. (Died in San Francisco).
 Allen, H. C., San Fernando, Cal.
 Delmont, Francis, San Francisco.

NOTICE.

Physician's case was found containing a number of instruments. Address California State Journal of Medicine, 930 Butler Bldg., S. F. Phone Douglas 2537.